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NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers in Great Britain cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions. Orders for overseas destinations can now be accepted

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Re-Opening Trade with China

WITH the end of the war in the Far East, it is probable that increasing attention will be given to the possibilities of resuming British trade with China. The needs of that country, especially for capital goods, must be very great and representatives of the Chinese Government have already visited both the United States and this country, in an endeavour to discover how best these requirements can be filled. Mr. T. K. Tseng, a representative of the Chinese Ministry of Finance, has had conversations in London in connection with the credits which China would need for orders placed in this country, and according to *The Observer*, he has forecast that China will resume interest payments on her old loans, but seeks special consideration until war damage is made good. A member of the British Embassy in Chungking, who has been investigating China's industrial needs, is reported to have returned to London with a long list of requirements, including machinery and railway rolling stock, reputed to be valued at some £13,000,000. In 1942 the British Government gave China a credit of £50,000,000 for war material, which was not expended because the goods could not be supplied. It is suggested that this credit might be made available to meet China's industrial needs. Heavy accumulations of arrears of maintenance on the Chinese railways, quite apart from the loss and damage suffered as a direct result of the war, should afford a substantial market for British railway equipment supply industries as soon as they are free to commence to meet demands for export on a considerable scale.

* * * *

Retirement of Colonel Francis, S.R. Stores Superintendent for 22 years

We record elsewhere in this issue the retirement from active duty of a well-known and well-liked railway chief officer in the person of Colonel C. J. H. W. Francis, C.B.E., Stores Superintendent of the Southern Railway. Apart from his numerous business achievements in a wide sphere Colonel Francis has the distinction of being the one remaining chief officer appointed by the directors on the establishment of the Southern Railway Company on January 1, 1923, and he has held this office with conspicuous ability since then. Colonel Francis, who has had a long career in the purchase and care of railway stores and equipment, was originally called into English railway life by Sir Herbert Walker, who in 1920 appointed Colonel Francis to reorganise the Stores Department of the former L.S.W.R. Upon the amalgamation of the companies forming the Southern Group in 1923, Colonel Francis's ability was recognised by the directors and he was selected to undertake the difficult task of co-ordinating and reorganising the purchasing departments of all the constituent companies and combining them into a workable unit. Notwithstanding his flair for efficiency and organisation, Colonel Francis has always diffused a cheery and happy atmosphere amongst those with whom he had to deal, and we wish him good health in his retirement, which we hope will be a long and happy one. A portrait and biography of Colonel Francis appear on another page.

* * * *

Retirement of Mr. George Mills, Divisional General Manager, L.N.E.R.

The retirement of Mr. George Mills on September 15 brings to a close a strenuous railway life spent in the service of the old North British Railway and of the London & North Eastern Railway Companies. Like so many successful Scotsmen, Mr. Mills was trained in accountancy, but he also sharpened his wits by attending the Heriot Watt College at Edinburgh and taking part in a railway debating society that flourished in the Scottish capital. His opportunity came when Sir Ralph L. Wedgwood selected him as a personal assistant with responsibility for rates and charges questions, statistics and allied problems. Mr. Mills spent six busy years in the Chief General Manager's office at Kings Cross, helping Sir Ralph to prepare his evidence for many important enquiries, and then returned to Scotland, where he became Goods Manager, and later Divisional General Manager. So thoroughly did Mr. Mills vitalise the work of the Scottish Area that four years ago he was asked to take charge of the larger Southern Area. It was no light burden to assume in wartime, but Mr. Mills tackled a difficult situation with energy and enthusiasm, never sparing himself and encouraging his people by making many a long tiring journey to attend local functions. Mr. Mills would also go to endless trouble to explain the railway companies' policy to the public and often addressed representative bodies of traders. He did a great deal to advance the activities of the Institute of Transport, especially in Scotland, and was never happier than when he was putting some young railwaymen in the way of widening their knowledge. His own record shows conclusively that our railways can provide a careeer, replete with interesting and useful work, for men who have persistence and a lively spirit of enterprise. A portrait and biography of Mr. Mills appear on another page.

Another Transandean Railway

Recently the Peruvian Senate has had under consideration a railway project of considerable importance. It is the extension of the existing Peruvian Southern Railway northwards from Cuzco down the Urubamba and Ucalayi valleys to the port of Iquitos, in the north-east corner of Peru, on the Amazon. Though 2,330 miles from the mouth of the great river, Iquitos, is accessible to ocean-going steamers, and railway and river together would give Peru a direct access to the Atlantic without the circuit now necessary to pass through the Panama Canal. The Office of the Inter-American affairs at Washington is interesting itself in the proposal, and comments that though an estimated cost of $15,500,000 for the 600 miles of new line required may seem an extravagance at the present time, the railway would tap regions which are believed to be rich in petroleum, rubber, and gold, and which are certainly prolific in timber, while the territory passed through, on the eastern slopes of the Andes, would be capable of colonisation. An economical type of construction seems to be planned, as the total sum named works out at no more than between £5,000 and £6,000 to the mile.

* * * *

Overseas Railway Traffics

After a recent steady improvement in the prices of securities of British-owned railways in Argentina, there has been a tendency for them to fall back. This has been apparent with debenture issues as well as preference and ordinary stocks. Traffics meanwhile continue good and the figures shown in the accompanying table for the 9th week of the financial year for the Buenos Ayres Great Southern and the Central Argentine are particularly encouraging. On the Argentine North Eastern the increase for the week is £4,294 and that on the Entre Rios is £3,938. Gross receipts of Brazilian railways are still mounting; the aggregate on the Leopoldina for the first 35 weeks of 1945 is £1,764,059, an increase of £174,098, and the corresponding total on the Great Western is £853,500, showing an improvement of £103,900. In the fortnight ended August 31, the Nitrate Railways obtained an advance of £3,719 in receipts and thereby reduced its aggregate decrease for 1945 to £3,734.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific* ...	9th	122,750	+ 4,625	1,114,250	+ 54,688
Buenos Ayres Great Southern*	9th	225,438	+56,500	1,754,563	+ 202,938
Buenos Ayres Western* ...	9th	63,750	+ 2,938	610,312	+ 40,562
Central Argentine*	9th	200,375	+21,469	1,706,766	+ 109,490
Canadian Pacific	35th	1,690,200	−387,600	42,099,800	+35,400

* Pesos converted at 16 to £

Aggregate gross earnings of the Canadian Pacific Railway from January 1 to July 31, 1945, amounted to £36,741,200, an increase of £363,000 in comparison with the first seven months of 1944. The aggregate net earnings of £4,223,200 were lower by £1,044,800.

* * * *

Evening Theatre Trains from London

As a result of the general curtailment of late evening transport facilities to the suburbs and outer residential districts of London, the performances at most of the West-End theatres have been timed to start considerably earlier than was usual before the war. At present more than 20 shows begin at 6.30 p.m., and some as early as 6.15. Although this change has called for an alteration in the time-honoured custom of seven o'clock dinner, and may possibly have occasioned some slight inconvenience to residents in the districts which were previously afforded transport facilities until a very late hour, it has proved a boon to those living further afield. Even with the reduced train services at present in force, it is possible to leave London after the theatres have closed, and to complete a journey of between 20 and 30 miles well before midnight. With the return of improved transport facilities, there will doubtless be a demand for the theatres to begin at a somewhat later hour, but when considering the wishes of their patrons, theatre managements might do well to keep in mind the convenience of those who live some distance from London, and adopt 7 or 7.15 p.m. for the start of the evening performance.

* * * *

Timetable Recovery Margins

In recent years it has become an increasing practice in passenger working timetables to indicate in the train columns margins of time to facilitate recovery of time which has been lost by abnormal circumstances. Usually this time is made up of odd minutes, over different sections of line, which are in excess of the normal point-to-point allowances because it has not been possible to arrange a path for the train concerned at the full normal speed. If the train is running late, however, running at normal speed is expected, and the difference between the actual and the standard schedules provides a recovery margin. Early in the war the Great Western Railway laid down minimum point-to-point times over all its main lines, and instructed drivers to work to these as standard in the event of their trains being behind time. For many years in the United States, even with the fastest trains, it has been the custom to allow more liberal running times over the last one or two non-stop runs before reaching the terminal, so that there may be an ample margin to recover time and thus to ensure a punctual arrival. All these methods lay stress on the duty of engine-crews to recover lost time whenever possible, and it is to be hoped that this principle will receive still more energetic official support than heretofore in British post-war recovery plans.

* * * *

Important Wartime Railway Works

This week we publish the second of our articles briefly describing the more noteworthy new works undertaken during the war, at Government expense, to deal with exceptional wartime traffics flowing in unaccustomed directions, or in unusual volume. Mention is made of quadruplings and doublings to increase line capacity, principally between the Severn Tunnel and Newport, Didcot and Newbury, and Gloucester and Cheltenham. Many hundreds of miles of additional siding accommodation were also provided at important and strategic points throughout the country. In one year alone, track and signalling works included building 140 new running loops, relaying 1,299 miles of line solely in connection with new works schemes, the construction of 123 new signal boxes and extensions to 310 more, and the provision of 16,415 miles of wire and 5,358 telegraph poles. All these wartime railway works remain Government property. Their ultimate fate is a matter for negotiation between the Government and the individual railway companies at the conclusion of control.

* * * *

Brazilian Iron Ore Development

The restoration and expansion of the railways in the Rio Doce Valley is hastening the development of the rich iron ore deposits in the neighbourhood of Presidente Vargas, in the State of Minas Geraes. The nearby Caue mountain is reputed to be the largest single deposit of iron in the world, with an iron ore content richer than many of the best deposits in the United States. Waterworks and an electric power plant have been completed, and the construction of an ore-crushing plant and a steel works is to be put in hand. Modern mechanical equipment for the loading of ships is available at the port of Victoria. The Victoria & Minas Railway, which three years ago was practically derelict, is now capable of handling 1½-million tons of iron ore annually, and is planned to carry treble this quantity. Sweeping reductions in freight charges are envisaged early in 1946. About 150 miles of new track have been laid; and 18 locomotives, and a large number of wagons for the conveyance of iron ore have been received from the United States. Nearly 50 stations have been provided with up-to-date signalling equipment. These notable developments are described in an article on page 273 of this issue.

* * * *

Heavy and Indivisible Loads

Some time ago it became apparent that a position had been reached where British electrical manufactures would be severely handicapped by restrictions in the transport of exceptionally large and heavy equipment for both the home and export markets. The existing loading gauge limitations of the railway system were practically determined a century ago, and are inadequate for modern requirements. The restrictions on the transport of exceptional loads by road are less onerous, but the permissible limits fail to give designers the scope required by projected developments, and which is available to competitors in overseas markets. In a recently-published memorandum, showing the trend of modern electrical design, and the transport limitations with which designers are faced, the Traffic Committee of the British Electrical & Allied Manufacturers Association, while implying no criticism of the railway companies, has pointed out that railway facilities in this country have proved inadequate for some pieces of electrical apparatus already manufactured, and that transport by rail for the larger indivisible loads now contemplated will be impossible. It is recommended that the export of electrical equipment should be concentrated on certain well-equipped ports to which adequate approaches by road should be provided.

* * * *

Pullman Abandons U.S. Sleeping Car Operation

The final stage in the anti-trust suit brought by the United States Federal Government against Pullman Incorporated has been reached in the announcement by the latter that it intends to discontinue its sleeping car service from December 31 next. Judgment in this long-drawn-out case, first filed by the Justice Department on July 12, 1940, and in an amended form on July 22, 1941, was given by the District Court of Philadelphia early in 1944, as set out

in an editorial in our May 5, 1944, issue, and directed that Pullman Incorporated must separate its car-building from its car-operating business, and dispose of one or the other. Our August 4, 1944, issue gave the separation terms, and on September 8 of the same year we recorded that Pullman was to continue its manufacturing activities, which always have been the more profitable side of the firm's operations. As we recorded on February 9 last, individual railways were being given the option of taking over their own sleeping-car operation, and the Pennsylvania had decided to do so. Pullman made an offer to transfer the entire business, cars included, to a consortium of American railways for the sum of $31,000,000 in cash and $51,000,000 in equipment and trust certificates, but this does not appear to have been accepted. Meantime, the investment firm of Otis & Company has offered to purchase the Pullman business for $75,000,000.

* * * *

Electric Power in Portugal

The question of extending the availability of electric power in Portugal for some time has been occupying the attention of the authorities, of industrialists and other users, present or prospective. Recently the Portuguese Association of Industries made representations to the government on the policy it considers should be adopted in this important matter, with which the development of new lines of industry in the country are closely connected. There is a fairly extensive network of feeders covering the greater part of the country from the Spanish frontier in the north to Setúbal in the south, connecting five steam and 12 hydro-electric power stations; the main transmission is effected mostly at 130,000 volts. The installed power grew from some 134,100 kw in 1927 to 282,600 kw in 1942, and the units produced varied from 187 to some 480 millions. In one respect at least Portugal has been far sighted in this matter. It passed legislation years ago which has resulted in one uniform system of working, without the confusion arising from the existence of various voltages and frequencies.

* * * *

Spanish Electrification Problem

The restrictions recently imposed on the consumption of electric power in Spain—due to a combination of difficulties arising from the civil war and the drought, which has influenced the hydro-electric power plants—have given rise to a good deal of public criticism of electrification projects. Our contemporary, *Ferrocarriles y Tranvias*, admits that appearances are deceptive, and to those unacquainted with the scientific aspect of the question very well may create an impression unfavourable to electric operation. The total production of electrical energy in the country was estimated to be a little over 4,700 million units in 1943, and the consumption likely to be called for in 1944, if all the broad-gauge lines had been worked electrically, is thought to amount to about 1,520 million units. It is also estimated that in that year the consumption of coal by steam trains was 0.1104 kg. per *tonne*-kilometre, and of electric power 0·0606 unit per *tonne*-kilometre, on the converted routes. Total consumption was 2,620,000 *tonnes* of coal and rather over 80 million units. The amount of coal consumed by steam locomotives and steam power stations for an equivalent amount of work varies as 1.82 to 0.80, in existing circumstances, and our contemporary concludes that the economies to be obtained by conversion of all main lines would finally be more than justified.

* * * *

Steam Locomotive Efficiency

An interesting correspondence has been proceeding recently in the columns of the *Railway Age* concerning the locomotive boiler. It arose out of an editorial in that journal in which it was suggested that cylinders and steam passages tend to limit maximum boiler output. A letter from Mr. Lawford H. Fry, Director of Research, the Locomotive Institute, stressed the fact that there are limits to the rate at which air can be drawn through the firebox, and that if the boiler is pressed beyond these limits, combustion of the fuel tends to be incomplete, and there is a progressive drop in boiler efficiency. A letter from another correspondent spoke of the inconsistency of praising improvements in steam use through better valve-gear design and reduced velocity through steam ports and passages, and at the same time of suggesting that boilers should be forced to supply steam at a greatly increased rate. In a second editorial, the *Railway Age* commended this bringing of locomotive design factors into a proper relationship, but remarked that other points which rank as of equal importance with fuel consumption, such as the wages of engine crews and operational expenses generally, must be taken into account, and that, on balance, it may pay in the end to work a locomotive uneconomically hard. Indeed, but for the response of the steam locomotive to such merciless treatment, it would not have been possible to handle the unprecedented war-time traffic in the United States, or, for that matter, in Great Britain.

The Road Motor Haulage Industry and Its Plans

IN our issue of January 7, 1944, we outlined the developments which were taking place within the road haulage industry. The fusion of interests of the old road associations has since become effective, and the National Road Transport Federation has been in being since January 1, 1945, and any future legislation and agreements concerning haulage undoubtedly will hinge on its organisation. Within the Federation are three Associations, each of which has freedom to follow its own particular interest and act independently of the Federation :—

Road Haulage Association	" A " and " B " licences.
Trades' Road Transport Association ...	" C " licences.
Passenger Vehicle Operators' Association	Such passenger-carrying operators as were within the foundation organisations.

The Road Haulage Association, which represents the public carriers of merchandise by road and is the most important section, has set about the task of organising the machinery for regulating and safeguarding the interests of hauliers with commendable enterprise. Committees have been formed for the purpose of exploring and advising on the various problems which confront the industry, and their titles give an index to these problems :—

1. Alternative Fuels Committee.
2. Highways Committee.
3. Labour Committee.
4. Legislation Committee.
5. Liability & Insurance Committee.
6. Licences & Rationing Systems Committee.
7. Parliamentary Committee.
8. Post-War Planning Committee.
9. Rates Committee.
10. Technical Committee.
11. Vehicle Supply & Maintenance Committee.
12. Functional Committees of specialist carriers, such as Meat, Livestock, Abnormal & indivisible Loads, Smalls, Tank, Milk, Films, Fruit & Vegetable, Horse Operators, Tippers, Sugar Beet, and others.

Local committees covering the areas of the respective licensing authorities also have been appointed throughout the country for the purpose of linking the individual haulier with the central organisation and for consultation on matters of importance.

The Road Haulage Association has issued two " Policy Booklets " outlining its aspirations for the future conduct of the industry and discussing the question of licensing. Without necessarily agreeing with all that is said, we can congratulate the Road Haulage Association on its statesmanlike views, which augur well for the future. The first booklet, " How Road Transport can Best Serve the Public Needs," read in conjunction with one issued at an earlier date by Mr. R. W. Sewill, now the Director of the Road Haulage Association, indicates the lines on which road transport in its corporate sense is thinking, and gives an outline of the problems to be faced, which in turn provokes conjecture of the answers which will have to be given.

Universal National Services

Inherent is the desire that road should emulate the railways and in the sum of its components become a responsible national transport organisation undertaking the movement anywhere in Great Britain of any merchandise which is within the capacity of road vehicles. The railways have their territorial areas to which they have been bound largely by their rails and their parliamentary powers, and it is only comparatively recently in railway history, when the possession of their own road motor fleets enabled them to go farther afield, that they have regarded themselves as transport providers in its widest sense rather than as carriers by rail, coupled with short-distance road cartage to and from the railway stations. The road hauliers suffer from the disadvantage that they are confronted with many problems which have to be solved in a comparatively short time, whereas the railways have had well over a century to grow up and link themselves together in such a fashion that the sender of a consignment, large or small, can pay the charges through to destination and have confidence that it will be safely delivered, however remote the address.

Roads cover the whole of the country and the fact that every town and village, and indeed every farm, is connected by road with every other place (there are 180,000 miles of roads compared with 19,000 miles of railway route) makes it physically possible for hauliers, if properly organised, to give a universal national service. With a full load a haulier can deliver to any destination, but there may be difficulty about a back load and it is usual for the established large firms to run as " liners " serving definite areas rather

than as " tramps " who accept and take loads everywhere. Each haulier serves the area of his choice, sometimes large and sometimes small, and although a few firms have through booking and interchange arrangements between themselves, this is very much more the exception than the rule. If universal road facilities are to be given, it will be necessary in the absence of considerable amalgamation among haulage firms, for an interworking organisation to be evolved for the exchange of traffic between short distance and long distance hauliers to ensure a through service to places not covered by the contracting company's own services. It would seem that individual hauliers will have to become common carriers within the areas they profess to serve, limited only by the size and number of their fleet. Probably it will be a considerable time before the road hauliers can be organised into a coherent whole for the purpose of giving an effective national service, and in many areas there is not sufficient business to justify both railways and roads giving parallel services. The railways have in being the back-bone of such services and road might very well consider linking up with rail and making use of their organisation on a give-and-take basis, to the financial advantage of both parties.

Relationship with Other Forms of Transport

The road haulage industry, although representing one of the earliest modes of transport, finds itself a newcomer in the transport world having been temporarily eclipsed by the railway during the last century. During the absence of the road haulier from the scene, the other carriers—railway ; canal ; coastwise shipping—have passed through various stages of metamorphosis and each achieved a relatively stable place in the national comity. Road haulage crashed back in the early 'twenties and in no uncertain voice claimed its birthright.

Between the two wars, road haulage was responsible for the break-up of the established order ; it made havoc of the good intentions of the Railways Act, 1921, which was intended to put the railways on a firm financial footing, and in 1939 established itself as a permanent member of the Big Four in transport. Road was accepted, but its position has not been defined, and it constitutes a disturbing element in the existing order of things which has shaken the economics of transport to the very core.

It is possible the business community did not foresee the ultimate result of accepting a free and uncontrolled transport agent and even if it did it could not avoid the march of progress, but the result is profound. The Transport Advisory Council in 1937, apparently did not realise, or if it did it was not expressed, that *two fundamentally different methods of obtaining remuneration for doing the same work cannot live in freedom side by side without any division of function, and in spite of the fact that it postulated that the trader should have the unfettered right of choice of his means of public transport, it also postulated that road rates should be founded on road conditions.* In 1939, the T.A.C. repeated this prescription, and again it did not take the logical next step in the argument and indicate that this would involve two systems of charging for the same movement of traffic unless the railways threw overboard the practices of a century and based their charges on road cost of working in those cases where the latter are cheaper than charges founded on the " value factor."

Basis of Road Charges

The road industry has grown out of individual effort and the services which are provided and the charges levied depend upon traffic possibilities. The haulier in his beginnings canvassed his friends and neighbours for their patronage and charged what he could get in the particular circumstances of the moment, these circumstances being governed first by the railway rate and secondly by the presence or absence of road competitors. For his longer distances he shadowed the railways, and we have seen a haulier's rate quotation to a prospective client offering without limitation, to carry any traffic anwhere " at 1s. a ton less than the railway." As the haulier in question possessed only two vehicles, he is fortunate that his offer was not accepted and made the basis of a formal contract. Much road traffic is still carried under " rule of thumb " conditions, the haulier touting for hire and provided he is satisfied with the prospects he is prepared to go anywhere at the best price he can get. This class of haulier, although in numerical majority, is not representative of the industry, and time has evolved many firms of substance and responsibility which provide regular and reliable road transport, usually within defined areas, running at regular hours and charging stable rates. Although these firms normally would accept everything offered to them which is within the capacity of their vehicles, they are at full liberty to discriminate and select the better paying business, and to concentrate their services between places which ensure a maximum of two-way loading over the longest distance possible, ignoring intermediate places situated on their line of route. To this extent, road business is still largely selective, which fact has given the industry an advantage over rail, although the latter, with its obligation to carry for all without let or favour is the paramount transport agency in the country.

It is often claimed that the time taken in moving traffic is a determining factor in the choice by the public of the service it prefers to use. That this is not wholly true is evidenced by the fact that coastwise cargo steamers have successfully competed with both road and rail for mixed cargoes composed of all descriptions of merchandise, even though the longer transit by sea can be measured by days and not by hours. Undoubtedly speed favours road in the case of the short-distance business, and particularly so if the traffic consists of small packages of retailers of householders' goods which can be taken from door to door in one operation, or if it has otherwise to be brought to, or delivered from, the station, but the railways, with their fast goods trains running on their exclusive tracks, can hold their own in the matter of speed in respect of the longer distances. Before the war, the railways ran well over 500 express goods trains every 24 hours, and their future policy will be to give still more services of this kind.

Except in the case of urgent or perishable traffic, which needs the fastest service it is possible to obtain, what is required is a transit which is reliable and reasonably expeditious, and after this condition is met the cheapest method will be chosen. In proportion to the total internal transport demand of the country, that which is required for essentially urgent business is small. During the years between the wars the really urgent business has followed the fastest service, irrespective of cost, but the non-urgent traffic has been sorting itself out gradually between the various transport agencies, each getting that which it carries more cheaply than the others and the measure of cheapness includes the factors of packing, risk, etc., as well as of actual movement. *This redistribution has been retarded by periodical adjustment of rates, but if not arrested, its final phase (leaving canals and coastwise shipping out of the picture) would give the railways the coal and heavy traffics, which are at the bottom end of the railway classification, and road the traffic at the top end, with a marginal fluctuating residuum in between.*

The wastefulness of national effort caused by road and rail possessing two factors of difference (speed and charge) can be exemplified by the Aberdeen to London fish traffic before the war. The railway could ensure a next morning delivery in London whilst road required an additional day. Although the road charges were considerably lower than those by railway, the traffic was despatched by rail Mondays to Fridays because the price paid by the consumer to the salesman depended on the freshness of the fish, and therefore the faster service was the more remunerative to the trade. As, however, there was no sale of fish in London on Sundays, the fish landed at Aberdeen Docks on Saturday was despatched by road and reached London in time for the Monday morning market ; as the week-end service to all intents and purposes was the same the trader chose the cheaper. Hence the railway fish wagons stood idle one working day each week and the road fish vehicles picked up what loads they could find in a northerly direction from London each Monday evening or Tuesday, returning to Aberdeen in time to load out again the next Saturday and race south during the weekend.

Rates and Classification

Railway revenue from merchandise traffic is derived from contributions from all traffics at various levels of pence per ton per mile, which in the past have provided in total a sufficiency to meet costs and leave something over for dividends. It is incorrect to say that certain classes of railway traffic have subsidised other classes : no class of traffic is carried at a loss, but obviously some contribute more to net receipts than others, and each helps to fill the coffers. Inasmuch as road charges must be based on road costs, and the public road haulier cannot expect to secure traffic unless his charges are lower than the cost to the trader of undertaking his own transport as a class " C " licensee with his own vehicles, it would appear that railway charges will be governed by the same considerations, because the railways cannot expect to hold indefinitely (with the exceptions we have seen) traffic for which the price of movement by rail is more than the price of movement by road. If it is asked what hope the public road haulier has to compete with the " C "

licence holder, the answer is that the latter rarely has a return load, whereas the public haulier can expect a return load in 50 per cent. to 75 per cent. of his runs.

The implications of this argument are serious. Railway and road transport are both essential to the national wellbeing, and both must be financially prosperous to be able to function adequately with a strong forward outlook. It would seem, in the first place, that the very logic of events will force railway and road to charge equivalent rates for that traffic for which there is competition. The 1939 T.A.C. report brought the two parties together in the Road-Rail Conference, and recommended that either general or regional agreements be made to avoid rate cutting. On account of the interweaving of traffic movement, regional pacts are not sufficient, and any agreements will have to be national in character. The great unknown is the effect on railway revenue if parity in rate with road has to be achieved for merchandise for which there is competition, which is mainly that in the higher railway classes.

Enhanced Post-War Costs

No one knows what the cost of post-war working on either road or rail is going to be, but it is known that both parties will have to meet enhanced costs, and it is possible that the increase in road costs will be more than the increase in railway costs. It has been said by both Chairmen of the Road-Rail Conference that in their preparatory work they have examined and compared some thousands of rates and in a great number of cases have discovered very little between road and rail, so it would appear that pre-war competition has already brought the two sides within measurable distance of each other for much of the main streams of traffic.

Provided a large number of new carriers' licences are not granted in the immediate post-war years, and this is a note of warning given by the Road Haulage Association in its Policy Booklet about licensing, there is likely to be a sufficiency of traffic while the nation is overtaking arrears of domestic, municipal, and national expenditure, to make for stability in the transport world and avoid the urge to secure business at any cost which might reappear were facilities largely in excess of requirements, which was the case before the war.

The foundation of a stable transport industry—whether road, rail, or water—must lie in the charging arrangements which determine the measure of prosperity of each and the quality of the service which can be given its patrons. The railway "Square Deal" campaign was the outcome of the conflict of two methods of charging and in that conflict both parties were becoming financially embarrassed.

It has been a canon of railway practice, and we believe it to be in the general interest, that the scales of standard rates should apply universally and that exceptional rates when given should be fair as between customer and customer, and to this extent the railways have evened out the more profitable areas with the less profitable and charged all more or less alike.

Rates Cannot Always be Remunerative

Any system of rates which reacts to local conditions, either of geography or of a plentitude or scarcity of traffic, besides being unfair in its incidence on particular customers, becomes unmanageable under a national interwoven system of rates covering traffic from anywhere to anywhere. Therefore, in the absence of amalgamations into a small number of large road units, some compensative arrangement will be necessary to remunerate those hauliers who, in playing their part in sustaining the national organisation, have to carry at rates which, in their particular circumstances, are not remunerative. The Road Haulage Association is examining this problem in order to overcome it. If it is to be successful, the public road hauliers, or at least those of them who desire to carry beyond a limited area, and become part of the national road service scheme, will have to agree, as the railways have done, to fix their rates on common bases, so that every haulier may know and charge the correct figure whether he is on his home ground or not; they will have to agree to have common conditions of carriage and also water-tight understandings regarding payment of claims, provision of incidental services, and all the other factors which might constitute hidden rebates. Of equal importance will be the necessity of accountancy and recording arrangements for long-distance traffic charged at through rates and handed over to other hauliers for a portion of the journey, or to complete the contract.

Classification as the railways know it is not practicable under road conditions, where the controlling factor is the price at which the potential customer can undertake his own work for himself. Put in another way "bulk in proportion to weight" must be a greater governing factor than "value." This does not mean that there is no room for any classification for road traffic, but any differentiation will have to be founded on "bulk in proportion to weight," and such other components as size of consignment, handling costs, insurance, and liability to damage. This leaves room for variations in charge, but not so great as occur under the existing 21 railway classes, where the relationship of transport costs to selling price of the article is a time-honoured factor. The Road Haulage Association considers that with legislative assistance, it can shoulder the responsibility of undertaking that road hauliers shall honour their part of a bargain. Knowing the difficulties the Ministry of War Transport experienced in the early days when its haulage schemes were launched, it is to be expected that the Road Haulage Association will require the simplest and most straightforward of charging schemes so that it may be easily understood and worked by its members, and this could be met by a system of mileage scales of rates attached to a simple form of classification. With 60,000 hauliers, a system of exceptional rates, as known on the railways, would be unworkable.

The Position of the Traders

The Road Haulage Association says that its aim is to provide the best all-round service to the community. This is the constant aim of the railways, and both parties realise that this aim cannot be attained if they dissipate their substance to such an extent that the services they can afford to provide are inferior. In this the trader is greatly concerned because reliable and adequate services are his just demand of transport, and he should welcome a system under which charges are watched by a Rates Tribunal, on which he has a seat, and competition is relegated to service. It is, however the trader himself, aided and abetted by the road motor, who has broken down the established system of railway charging based on a value classification. The railway classification built up under monopolistic conditions held a reasonably fair balance as between trader and trader, and allowed the railways a reasonably adequate income.

Insofar as the trader placed traffic on the roads, and diverted from the railways some of the revenue for which they had budgeted when they drew up their classification and rates scales he has destroyed any right he may have felt he possessed to regard the railway classification as a static document which should give him for all time the privilege of having certain descriptions of traffic carried at a lower rate per ton per mile. Further, the trader has in practice demonstrated that the quantum of individual rates is not such a matter of prime importance, as much evidence given before the Railway Rates Tribunal in days gone by would seem to have proved and the more recent system of agreed charges has indicated that it is the total transport charges in relation to the total output, together with the assurance that trade competitors are not receiving a financial advantage, which is of moment; in fact, in the words of Mr. J. G. Kerr, Chairman of the Southern Freight Association, at Atlanta, U.S.A., "Rate relationships are of more importance to shippers than the rates themselves."

We do not know what the plans of the road association or the railways are, but if they involve a simplification of charging arrangements to a series of mileage scales based largely on road factors which can be applied easily by the individual road hauliers who have not, and could not be expected to have, the large expensive organisation of the railways, we think such plans should be welcomed by the trading community provided that in total transport does not demand a greater proportion of agricultural and industrial income than it has claimed hitherto. Having considered the position of the Road Haulage Association and also the recommendations of the Transport Advisory Council, we do not think any other general outline will prove to be practicable. The days have gone when a business man could play off railways and roads, and at the same time snatch a fortuitous advantage over a trade competitor, and industry should welcome any scheme which will eliminate one more of the unknown factors to be faced in business transactions.

URUGUAYAN RAILWAYS.—The Central Uruguay Railway Co. of Monte Video Ltd., the Midland Uruguay Railway Co. Ltd. (& Extension Co. Ltd.), the Uruguay Northern Railway Co. Ltd., and the North Western of Uruguay Railway Co. Ltd., have returned to their registered office at River Plate House, Finsbury Circus, London E.C.2. Telephone No.: Monarch 2164.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

End-Door Corridor Coaches

London & North Eastern Railway,
HQ1 (via Hitchin). September 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Lt.-Colonel A. H. Burne's plea in his letter in your August 31 issue for the construction of no more end-door corridor coaches has been answered already by the L.N.E.R. Prototypes of both first and third class main-line vehicles to be built by the company in the immediate post-war years have been in traffic for some months now; the first class coach actually appeared before VE-Day.

The design of both vehicles incorporates transverse passages which connect the entrance doors and divide the vehicles into three parts. This layout has the effect of reducing the distance passengers have to walk between compartment and entrance door; the transverse passages provide convenient passing places for travellers proceeding along the corridor. In addition, the disposition of the entrance doors will lessen congestion on the platform when passengers are entraining and detraining, but this advantage will not fully be realised until we have complete trains made up of these vehicles.

Yours faithfully,
GEORGE DOW,
Press Relations Officer

"Consecutive Number" Stations

64, Martyrs' Field Road, Canterbury,
Kent. September 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—If your first correspondent on the above subject (Mr. Roberts) is still anxious to know to what extent foreign railways can augment his list of "consecutive number" stations, may I suggest he first of all try the United States of America. Considerations of space alone prevent me from giving a list in full of such American stations, but I append a sample list, with the assurance that there are plenty more where those come from.

0	Nihil, Norton.	29	Twenty-nine Mile Siding
1	Wonder, Wonderland.	30	Thirty Mile.
2	Two Dot, Two Springs, Twain.	34	Thirty-Four.
3	Three Mile, Three Point.	39	Thirty-ninth St. & Third Avenue.
4	Four Holes, Four Mile.	40	Forty Fort.
5	Five Block, Five Fingers.	48	Forty Eight Road (Canada).
6	Six Corners, Six Lakes.	52	Fifty-second Street.
7	Seven Nations, Seven Oaks.	57	Fifty-seventh Avenue.
8	Eight Mile.	58	Fifty-eight.
9	Nine Mile, Nine Springs.	66	Sixty-Six.
10	Ten Brook, Ten Mile Hill.	70	Seventy Mile (Canada)
11	Leavenworth.	76	Seventy-Six.
12	Twelve Mile.	84	Eighty-four.
16	Sixteen.	96	Ninety-six.
17	Seventeenth Street Transfer.	100	Hundred, Century.
21	Twenty-First.	130	One Hundred and Thirtieth Street.
25	Twenty-five Mile Siding.		

All the above stations are to be found on main or branch-line railways. This list does not include stations on purely urban lines (subways, elevated railways, etc.). These form another prolific source; the New York internal lines alone give no less than 160 examples.

It will be noticed that where a hyphen is used it is sometimes followed by a capital letter and others by a small letter. Why this distinction is there I do not know.

Yours faithfully,
ARTHUR G. WELLS

Memorialising the G.N.R.

Hurstpierpoint,
Sussex, August 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Fifty years ago Crouch End was a high-class suburb (no reflection on the present highly respectable inhabitants of Crouch End). Among the inhabitants were high-ranking civil and other Government servants, officers of the Great Northern Railway, professional and wealthy business men.

There was a small coal siding at the rear of the down platform at Crouch End Station. But a rumour gained currency that the coal siding was about to be enlarged considerably. Thereupon some of the local aristocracy prepared the following petition:—

To Sir HENRY OAKLEY, *General Manager*,
Great Northern Railway,
KING'S CROSS.

We, the undersigned Season Ticket Holders, being Owners or Occupiers of Property adjacent to the Crouch End Station of the Great Northern Railway, are of opinion that the proposal of your Company to enlarge the sidings and coal yard at Crouch End Station for the purpose of increased coal traffic is largely calculated to injuriously affect the health and comfort of the surrounding inhabitants, cause a serious loss to the owners in the depreciation of their property, and spoil a suburb which has been growing in favour with the public.

We, therefore, respectfully request your Company to abandon the proposed extension.

Copies of the above, signed by 26 of the local bigwigs, were sent to season ticket holders, with the following letter:—

CROUCH END.
March 3rd, 1896

Dear Sir,

A deputation of Season Ticket Holders of the Great Northern Railway, being also owners or occupiers of property adjacent to the Crouch End Station of the Great Northern Railway, is to wait on Sir Henry Oakley, accompanied with a memorial urging the Great Northern Railway Company to abandon their proposed scheme for sidings at Crouch End Station, and we would ask you to kindly sign and return the accompanying form in the course of a post or two.

Yours faithfully.

The visit of the deputation to Kings Cross apparently met with a measure of success, as some time elapsed before the extension was carried out.

When the Finsbury Park to High Barnet branch was constructed, the railway was compelled to purchase a large house with grounds; with a frontage to Crouch Hill. The railway required only a small portion of land, a road was made alongside the railway, from Crouch Hill, to develop land towards Stroud Green. This left the house with a good deal of garden. The railway did not sell it, but one of the "high ranking" officers took it over, no doubt paying rent for it. When this tenant died, there was competition among the Kings Cross head office staff, to obtain a tenancy of the desirable residence. When this lucky one retired, or died, the house was again in the head office market, and so on.

Yours faithfully,
G. A. SEKON

Greater London Plan, 1944

Essex House, Essex Street,
Strand, W.C.2. September 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In Sir Patrick Abercrombie's "Greater London Plan, 1944," the map (between pages 78 and 79) in giving existing electric lines shows:—

(i) The Metropolitan Railway as being electrified beyond Rickmansworth to Aylesbury. (In paragraph 195 of the report itself a different variation from accuracy is given when Chesham is stated to be a place to which the London Passenger Transport Board runs electrified services.)

(ii) The Metropolitan branch to Watford and the L.M.S.R. branch to "Croxley Green" (so-called) are ignored, but by way of compensation the L.M.S.R. Watford—Rickmansworth branch is shown as electrified throughout, until it effects an imaginary junction with the Metropolitan Railway at Rickmansworth.

As I think has been pointed out already in your columns, the report in proposing to link up the L.M.S.R. Hemel Hempstead branch with the L.N.E.R. at Harpenden appears to ignore the difference in level of about 100 ft. to be accomplished in about a mile (say 1 in 53), though it is fair to say that by its Act of 1866 it was proposed that the "Hemel Hempstead and London & North Western Railway"—as it was then called—should connect with the Great Northern Railway, as well as with the Midland Railway, at Harpenden.

Yours faithfully,
KENNETH BROWN

Railway Progress in New Zealand

30, Plunket Avenue, Petone,
New Zealand. July 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—One or two slight inaccuracies in Mr. G. G. Stewart's article "Railway Progress and Prospects in New Zealand," published in your February 23 issue, prompt me to record the necessary corrections. I should also like to take this opportunity to comment on some of the points raised by Mr. Stewart.

Under the heading, "Paeroa-Pokeno Line," in the fifth and fifteenth lines, Hawiaki plains and Hawiaki Gulf respectively should read Hauraki plains and Hauraki Gulf. In the same paragraph, Mr. Stewart remarks that the Paeroa-Pokeno line will give direct access between other parts of the Auckland province and the *Bay of Islands* district. Surely Mr. Stewart means the Bay of Plenty; the Bay of Islands is some 180 miles *north* of Auckland!

Concerning the duplication of the main line between Auckland and Frankton Junction, the suggestion is made that this is all but completed. The fact is that "the swamp section of several miles nearly midway between those points" amounts to some 31 miles, or more than a third of the total distance of 86 miles. Those 31 miles of single track remaining to be duplicated make the operation of the very heavy traffic between Auckland and Frankton Junction still rather a difficult matter, especially in view of the fact that traffic has grown tremendously even since the decision was made to duplicate that section of line.

In remarking on the track under the heading "Better Road-bed

Needed," Mr. Stewart does not appear to be aware of the fact that, as long ago as 1938, 85-lb. rails were adopted as the new standard for all main lines—not merely for certain portions of track. In recent years, all relaying on main lines has been with rails of 85-lb. section. I have always understood that the rails laid through the tunnels between Wellington and Tawa Flat are of 100-lb. section, not 110-lb. as Mr. Stewart quotes. Also, 100-lb. rails are laid through the Otira and Lyttelton tunnels.

Returning now to an earlier portion of Mr. Stewart's article, "The Question of Gauge," I think it is a pity that he did not give us some little indication of the benefits he would expect to be derived from an increase in the track gauge to the standard of 4 ft. 8½ in. Should the increase in traffic justify the expenditure, the capacity of our railway system could be immensely increased, and the standard of service could be greatly improved, by many works which, although costly, would not represent anything like the immense outlay that would be necessary to provide what would be, in effect, a brand-new railway system. There is no break-of-gauge in New Zealand, as there is in Australia, as justification for the change of track gauge. Many of us in New Zealand are not inclined to agree that the standardisation in 1870 of the 3 ft. 6 in. gauge was, as Mr. Stewart claims, a mistake. The development of the railway systems of South Africa, Java, and Japan give a little indication of the possibilities of development with the 3 ft. 6 in. gauge wherever the volume of traffic is sufficiently heavy.

In concluding his article, Mr. Stewart lists a number of works and improvements which "should be included in any future comprehensive railway programme." I think it is safe to say that most of the works and improvements referred to are already included and only await manpower and materials. Concerning the procurement of the necessary materials for these works, it would not be surprising if these cannot be obtained as quickly as might be desirable, for it must be remembered that the "devastated countries" will have first call, and rightly so, on material available after the war.

Yours faithfully,

T. A. MCGAVIN

Railway Wages

77, Sundale Avenue, Selsdon,
Surrey. September 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—According to "Vigilant," whose letter is published in your August 31 issue, the only justification for an increase in wages is an agreement to do more work for such increase. Such considerations as a rise in the cost of living apparently do not give any claim to increased pay to meet these costs, to say nothing of any general demand for improved standards of living by those who were so stupid as to be born with no other fortune than a pair of hands and a brain with which to procure a livelihood.

There is an implied sneer in "Vigilant's" letter that railwaymen are not doing as much work as they could within their working day. This is quite unjustified when applied to a body of men and women who have recently met all the exertions and dangers of war with little grumbling, no strikes, and wage rates far below those generally prevailing in industry.

If we take to its logical conclusion the premise that income can be taken from an industry only in proportion to the amount of useful work performed, it would seem that those who take dividends from the railways can have little right to such payments as they do absolutely no work at all for the industry.

Yours faithfully,

ERIC E. SAVAGE

Recent Locomotive Designs Compared

Norfolk. September 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the otherwise interesting article in *The Railway Gazette* of September 7, propounding what might be called a "spot-comparison" of three recent designs of heavy-haulage-duty locomotives, a fundamental factor has been omitted and the comparisons are consequently somewhat misleading from a practical point of view.

The fact that the flexible-wheelbase 2-10-0 design for the Central Uruguay Railway is equipped with a boiler the design of which is conditioned by the fuel—that is, oil fuel—employed appears to have been overlooked; and the comparison on which the writer of the article bases his "combined relationship of the cylinder-tractive force and the steaming capacity of the boiler"—obviously a correct procedure when fuels are similar—fails when the latter, as in all three cases, is derived solely from the heating surface figures *per se* without allowing for the greater effectiveness of a given heating surface in an oil-fired boiler.

When allowance is duly made for the oil-fuel firing of the C.U.R. locomotives and the appropriate increased steaming capacity attainable with fuel-oil compared with coal—an output conservatively appraised at plus 12 per cent.—the respective comparisons and diagrams become changed—in fact, the order is reversed and the graphs corresponding to the C.U.R. locomotives will be found somewhat better than the others. For instance, in Fig. 1, the "pull-speed" curve for the C.U.R. engine, rightly shown as appreciably higher up to about 10 m.p.h., then continues into the higher speed range as the most advantageous. A similar change is brought about in Fig. 2, as also occurs with the "rated evaporation per hour," "boiler horse-power," and, naturally, with the important ratio "rated tractive force ÷ equated heating surface," which becomes, in effect, 13·1 instead of 14·5 (all in the table "Fundamental factors of design," on page 249).

It may be noted that the last—very important—ratio becomes 13·1 (effectively), 13·0 and 12·75 for the respective designs, thus seeming to indicate a crystallisation of opinion concerning the proper relation between the "boiler" and the "engine" in modern locomotive design. It might be supposed that the boilers of "austerity 2-10-0" and "American-austerity 2-8-0" having the ratios of 13·0 and 12·75, would *ipso facto* correspondingly improve if those boilers were put to burn oil fuel; this, however, is by no means the case, as their fireboxes are not of a pattern particularly suited for fuel-oil, as is, naturally, the C.U.R. boiler.

Yours faithfully,

P. C. DEWHURST

"N or M"

Brighton. September 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The letter from Major R. M. Robins in your August 31 issue so admirably debunks the practices adopted in varying degrees by all our railways in connection with the naming of locomotives that there is little more to be said on the subject except to echo the hope that railway managements in future will name their engines in accord with the refreshed conception he has suggested. If names of inanimate objects alone are ruled out, it will go a long way towards removing some of the absurdities that are utterly unworthy of one of the most animate mechanisms devised by man. Names of towns or places served by the railway are particularly stupid, for they have been known to mislead the inexperienced passenger.

Personally, I should not mind if our locomotives were not named. After all, the Midland, Great Eastern, and North Eastern got on very well with only a tiny minority of their engines named, for they more than made up for this omission by adorning them with beautiful liveries and delightful heraldic devices, and they did at least keep their engines clean. The present cult of locomotive dirtiness and drabness started long before 1939.

I should be interested to know what Major Robins thinks of the use of names of mythological characters. What a nice touch it would be if the handsome, if perhaps not thrilling, mixed-traffic electric locomotives of the L.N.E.R. that will eventually haul trains between Manchester and Sheffield were named after the engines that worked the line a hundred years ago. *Jupiter, Juno, Apollo, Hercules, Pegasus,* and *Pluto* were some of them; there are plenty more to choose from.

Yours faithfully,

NOMENCLATURE

Alternatives for "Enthusiast"

110, Swanshurst Lane, Moseley,
Birmingham. September 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to the correspondence in *The Railway Gazette* a short while ago dealing with the question of finding a suitable name for, and in substitution for, "railway enthusiasts," may I borrow from one of our Allies and suggest "Cheminologists"?

Yours faithfully,

P. J. TRUSCOTT

Der Bahnhof

15, Northbrook Road,
London, S.E. 13, September 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The copy of this artistic German Railway Poster appearing in your August 31 issue shows that the coaches of the train in the centre of the picture have flexible coach bodies. No one will object to this artistic licence; but it is surprising that an artist (who would appear to have no railway technical knowledge) should so ably show so much accurate detail, which he must have drawn as he saw it, and should then fail to draw what he ought to have seen in the main centre piece of his picture.

Yours faithfully,

FRANK J. SALBERG

The Scrap Heap

GETTING A SLEEPER

Trying to get a sleeping berth on a train to Scotland proved an exasperating experience for Major-General Sir Edward Spears, who wanted to go to Perth on August 30. The best train, he was told, had been booked up long before, so he tried the second best, for which, he was informed, bookings would not begin until 6 a.m. on August 16, VJ Day.

He was then told by the L.M.S.R. that it was impossible to say till August 29 whether there would be a berth. Would he telephone then? General Spears did so. Would he ring again on the afternoon of the actual departure? The General rang. He was informed that the Ministry of War Transport was taking all berths. So this business journey had to be postponed.

General Spears protests that business men cannot wait in their offices with a packed bag "on the off-chance some official may change his mind and cancel his booking." Priorities should go to business men and not to Government officials.

Business men will agree. But as long as the Ministry of War Transport clings to the right of priorities there seems little hope of this change.—*From "The Londoner's Diary" in "The Evening Standard."*

* * *

(1) At no time has the Ministry of War Transport taken over all sleeping berths. Throughout the war on a number of routes some berths have been available to the public, and on some routes, *e.g.*, Inverness, Perth, Stranraer and St. Pancras-Edinburgh these berths formed a substantial proportion of the total number.

The railway companies were free to book these berths for the public a fortnight before the date of the journey. For a period of a few months before and after D-Day this was reduced to one week. None of these "public" bookings has ever been cancelled by the Ministry of War Transport in favour of a priority passenger.

(2) It is the policy of the Ministry to make available to the public as many berths as possible, and since VE-Day the number of berths held by the Ministry for priority passengers has been reduced progressively. The railways were permitted to book the "public" berths at any time before the journey.

(3) A further release of priority berths is now being made which will result in about 50 per cent. of the total number of first class berths and 75 per cent. of the third class berths being held by the railway companies for sale to the public. About 41 per cent. of all first class berths and 72 per cent. of all third class berths from London to Scotland will be available for the public, but the percentage varies on the different routes.

(4) The sleeping berths held by the Ministry have been allocated to members of Parliament travelling between London and their constituencies or between other places on business of the House, and to senior officers of the Services, senior Government officials and business men whose applications have been sponsored by the appropriate Government department on the ground that the particular journey is on urgent business of national importance and must necessarily be made at night. The number of bookings made for Government officials has been a small proportion of the whole.

(5) Berths held by the Ministry but not required for priority passengers on any night are released to the railway companies on the day before the day of the journey so that they may be allocated to the public. It is only for these berths that the railway companies are not free to make definite bookings well in advance of the day of travel.

The only satisfactory solution of this difficult problem is the provision of ample sleeping berth accommodation. This we are trying to do as rapidly as possible, but unfortunately it will take some time.—*Mr. G. R. Strauss, Parliamentary Secretary, Ministry of War Transport, in a letter to "The Daily Telegraph."*

* * *

COAL (12S. A TON) AND RAILWAYS (½D. A MILE)

Already do the inhabitants of Stockton begin to feel most sensibly the advantages of the communication made by the opening of the new Darlington Rail-road; for the price of coals, which was before the opening of the Rail-road 18s. a ton at Stockton, is now reduced to 12s. Now what must be the advantage when a sufficient time has elapsed to enable the proprietors of coal mines on the line of the Rail-road to open the same? Incalculable. It is added, the Rail-road Company find carriages, and propelling powers included, for one halfpenny per ton per mile.—*From the "Liverpool Advertiser," November*, 1825.

* * *

L.M.S.R. HOUSING IN HAMBURG

We have been informed by Sir William V. Wood, President of the L.M.S.R., that the coach date plate referred to on page 239 of our September 7 issue, shows that the vehicle mentioned is an L.M.S.R. third class vestibule No. 8422, converted into an ambulance coach with centre doors for ease in loading stretchers. This coach was lost in France or Belgium in 1940.

* * *

100 YEARS AGO

From THE RAILWAY TIMES, *Sept.* 13, 1845.

MAURITIUS RAILWAY COMPANY, from PORT LOUIS to PORT MAHEBOURG, with Branches to other parts of the Mauritius, or Isle of France.—(Registered provisionally.)—CAPITAL £350,000, in 14,000 Shares of £25 each.—DEPOSIT 1*l.* per Share. And no further call, until a Report is submitted to the shareholders from a deputation appointed to visit the Mauritius.

A reserve of not exceeding 2,000 Shares will be made for the Island.

Offices, 19, King's Arms-yard, Moorgate-street, London.

Applications for shares to be addressed to the Provisional Committee in the annexed form.

FRANCIS KITT, Secretary.

19, King's Arms-yard, Coleman-street.

The Provisional Committee will take the utmost precaution in allotting the shares to responsible parties, and that at the earliest possible moment.

FORM OF APPLICATION SHARES.

To the Provisional Committee of the Mauritius Railway Company.

Gentlemen.—I request you will allot me shares of £25 in the above railway, and I undertake to accept the same, or such less number as you may appropriate to me, subject to the regulations of the Company, and to sign the necessary deeds, and to pay, when required, the deposits thereon of £1 per share.

Dated this day of 1845.

Name in full .....
Profession or business .....
Residence in full .....
Reference .....
Witness to the signature of the applicant .....
Address of the witness .....

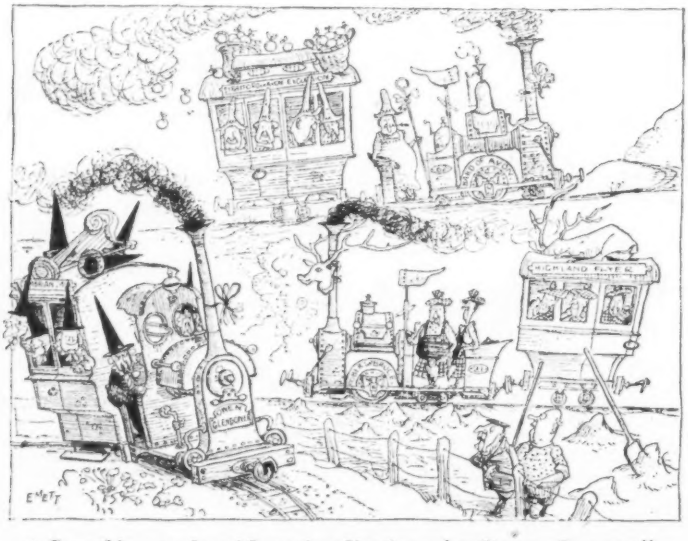
* * *

TAILPIECE

(*A mobile penicillin exhibition is being run by the G.W.R.*)

Within the scheme of things each plays its part,
The art of transport and the healing art,
And it is good, as all the world will say,
That one should help the other on its way—
That vans for parcels should reveal within
The miracles of modern medicine,
And Western cities by this kindly plan
Should see what penicillin does for man.

E. C.



"Something to do with nationalisation of railways, I expect"

[Reproduced by permission of the proprietors of "Punch"

RAILWAY QUESTIONS AND ANSWERS

Statement.—The result of a "capitalist greed and stupidity" which insisted on distributing profits instead of improving facilities, is to be seen in the antiquated lay-out of the existing railway rolling stock and the lay-out of some stations which is almost exactly as it was nearly 100 years ago.

Answer.—To talk of "capitalist greed and stupidity" in connection with the railways of Britain is to ignore the facts. In the years between 1929 and 1939 the railways out of their own financial resources spent £450,000,000 on new works, modernisation, and re-equipment. The expenditure was carried out at a time when world industry was facing an economic blizzard, and to maintain their policy of continued modernisation, the railways had to sacrifice the short-term interests of their stockholders. Dividends were not paid on much of the railway stock during those years. British railway rolling stock is not in a "deplorable state." After the heavy burden of six years of war, when labour and materials have not been available for renewal or repair, it may look a little worn, but it is nevertheless still the best in the world for the fares charged. Railway stations were fast being rebuilt or modernised in the years before the war and this policy will be continued and increased when Government controls are removed.—*From "Answers to Questions and Statements," issued by the British Main-Line Railway Companies, 22, Palace Chambers, London, S.W.1.*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Central Training Institute

The temporary home of the Railways & Harbours Central Training Institute at Kroonstad, in the Orange Free State, has now been occupied for the first time. As reported briefly in *The Railway Gazette* of August 24, the buildings are those previously used by No. 7 Air School. The barracks have been turned into three- and four-room flats, and the staff and students will have their meals in the former officers' and other messes.

Some students were admitted on July 23, and more will go into residence during the next few months. As new sections of the buildings are made ready, students will be admitted in groups. In the near future classes will be opened for language students, station foremen, steam-engine drivers, communication apprentices, and motor-vehicle drivers. These classes will be open at weekly intervals and each course will be of approximately six months' duration. In the early stages students will be drawn chiefly from the ranks of returned soldiers in the service of the Railways & Harbours, but members of the railway staff who require instruction will also be enrolled.

The capacity of the Kroonstad Training Institute is approximately 700 students, together with the necessary staff. By the end of 1945 the full quota of students will be in residence.

Air Passenger Traffic

More passenger journeys were made over the various routes operated by South African Airways during June than in any previous month since the re-introduction of civil air services on December 1, 1944. The June total was 4,213 journeys, representing an increase of twenty-two over the previous highest figure recorded in March last, when the Parliamentary Session and seasonal holiday traffic were responsible for heavy bookings on the routes to and from Cape Town. There was a marked increase in traffic over the Rand-Durban section, where the total number of passengers carried by all aircraft flying over the route rose from 1,084 in May to 1,301 in June.

The increase from a weekly to a twice-weekly service between the Rand and Bulawayo has also paid well; the percentage of seats occupied over this section during June rose to 98·61, the highest figure yet recorded.

UNITED STATES

Damage to Freight in Transit

In the year 1944, United States railways settled claims resulting from damage and loss of freight while in transit over the railways which amounted to a total of $59,756,336, as compared with $42,050,364 in 1943—a disconcerting increase of 42 per cent. The biggest increase was in loss and damage to "l.c.l." or less-than-carload shipments, which went up by 49 per cent. from $12,521,934 to $18,693,436; the increase in claims respecting full carload shipments was 39 per cent. from $29,258,430 in 1943 to $41,062,900 in 1944. The relative susceptibility of various commodities to damage has not altered greatly during recent years; it is the increase in the volume of the damage that causes concern.

Level Crossing Dangers

Strong action has been taken by the Long Island Railroad in an attempt to reduce the constant stream of casualties resulting from the carelessness of motorists at level crossings. During 1944, this railway alone spent $797,936 on various warning systems and watchmen's wages, bringing the expenditure under this head to an accumulated total of over $37,000,000. The permanent types of warning on highways at the approach to crossings, include flashing lights, bells, manually-operated gates, round black-and-white and diamond-shaped signs well away from the crossings and watchmen displaying "stop" discs. The latest endeavour to secure greater caution includes newspaper advertisements and striking posters on stations, the first of which depicts a car speeding over a crossing in front of an approaching train, in defiance of flashing signs and warning bells, and lettered "Don't Gamble with Death at Grade Crossings!"

Budd New Coach-Building Plant

The Edward G. Budd Manufacturing Company, well-known for its use of stainless steel for railway coach construction, is arranging to transfer its passenger-coach building activities from Chicago to Bustleton, Pennsylvania, in the vicinity of Philadelphia. Here the Budd Company during the war has been operating a Government-owned plant, under a war plant facilities lease of the Reconstruction Finance Corporation, sponsored by the Navy Department.

The new lease, which is to run for five years, provides that, as soon as the full change-over in production becomes possible, 77 per cent. of the space will be used for building coaches; and a gradual transition from munitions to coaches will enable both branches of manufacture to proceed simultaneously, and will keep the works staff together. The plant incorporates a main manufacturing and assembly building, with six main bays each 1,800 ft. long, covering 24½ acres. There is thus ample room for assembling 80 carriages, of standard 85 ft. length, in four lines at one time. There is adequate space to house sub-assembly lines and fabricating facilities for parts adjacent to the main assembly lines.

The remaining 23 per cent. of the plant at present is in use as a disposal centre for Government surplus stores, and may be added by the Budd Company to its coach-building space when vacated. The administration building contains 45,000 sq. ft. of floor space on two floors, with every facility. The company expects, with this plant, to be able rapidly to overtake the arrears of orders for streamline passenger stock which have accumulated during the war period.

PERU

Railway Traffic Increases

Goods haulage by Peruvian railways reached an unprecedented level in 1944. Traffic of the 22 public railways amounted to 356,700,000 ton-km. in 1943, or 22 per cent. more than the average for the four pre-war years 1936 t o1939 inclusive. The lines of the British-owned Peruvian Corporation, and the United-States-owned Cerro de Pasco Railway accounted for 91 per cent. of the 1943 traffic.

Passenger traffic in 1943, with a total of 213,000,000 passenger-km., was 65 per cent. above the pre-war average. The British- and United States-owned railways mentioned accounted for 77 per cent. of this traffic. In 1944 there was a further increase of 9·3 per cent. over the preceding year in the number of passenger-km., and on this basis 1944 passenger traffic is estimated to have increased 80 per cent. over the pre-war average.

Tariffs have been advanced with demand for transport services. The average goods rate in 1943 was 9 per cent. above the pre-war average, and in 1944 was estimated at 10 per cent. over 1943. Operating profits of Peruvian Corporation lines for the financial year ended June 30, 1944, were more than three times the pre-war average, and net profits made the best showing since 1930. Operating profits of the Government-owned lines were 65 per cent. above the pre-war average.

Existing Mileage

The principal lines of the 22 public railways in Peru total 1,357 miles. There are also 15 private railways owned by various Peruvian and foreign concerns with a total route length of 305 miles. In the main these serve oil fields, mines, and sugar plantations.

New Lines

Among the railways actually under construction are the following three extensions of existing lines: (*a*) the 40-mile standard-gauge line from the recently-completed deep-water port of Matarani, near Mollendo, to connect with the Ferrocarril del Sur del Peru at La Joya; (*b*) the standard-gauge line from Pachacayo (on the Ferrocarril Central) southward 60 miles to Chaucha; and (*c*) a 38-mile narrow-gauge extension of the Cuzco-Machupicchu line to Santa Ana, which would serve a populous agricultural district.

A 29-mile extension of the Huancayo-Huancavelica line to Castrovirreyna, to haul copper and other ores is projected, and some consideration is being given to a possible extension from Huallanca to Recuay through the Canon de Pato, which would connect with an existing line to Chimbote on the Pacific coast. Completion of the latter depends on plans of the Santa Corporation for developing the iron, coal and electric-power resources of this region.

SWEDEN

Pooling of Locomotive Exports

To assist in the development of Sweden's export trade in locomotives, the Swedish engine building works of Nydquist & Holm, Motala Verkstad Aktiebolaget, and Svenska Järnvägsverkstäderne Aktiebolaget recently set up a joint selling organisation, called the Swedish Locomotive Works Association. The Swedish locomotive industry is envisaging the possibility of substantial orders from abroad in view of the shortage of locomotives, and the restricted possibilities of building locomotives in most of the European countries. The wiping out of the German locomotive industry, once the most serious competitor of Swedish locomotive builders, has acted as a stimulating factor in the preparations now being made.

For about twenty years the Swedish locomotive industry has had no opportunity of supplying steam locomotives to the Swedish railways because of large-scale conversion to electric traction. Orders from Swedish railways for steam locomotive replacements were not received until 1944. The Swedish locomotive industry supplied large numbers of steam locomotives to Russia and Holland many years ago, in addition to a smaller batch of locomotives for the Persian railways, and secured an order for 50 steam locomotives from Holland in 1944. Of these, the first two were delivered recently. Negotiations are in progress with the Czekoslovak State Railways for a substantial number of locomotives to be supplied against long-terms credits. There are hopes, too, of securing orders from Norway and Poland.

Some New Works for Wartime Traffic—2

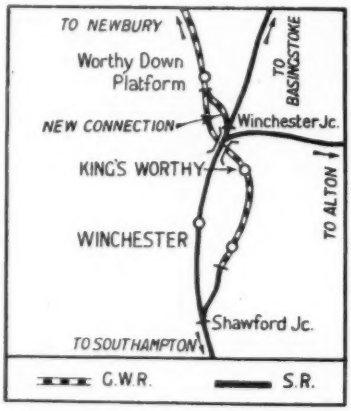
Quadruplings and doubling of lines to increase line capacity. Various emergency provisions

AMONG the more important schemes to provide additional running facilities and siding accommodation to assist the working of wartime traffic was the widening of 6 miles of line between Gloucester and Cheltenham, L.M.S.R. and G.W.R., by the construction of two additional tracks, thus quadrupling the section. This scheme involved considerable engineering and signalling work and included the provision of 36 track circuits, 13 gantry signals, 4 new signal boxes, one of which has 102 levers, and the removal and replacement of the whole of the telegraph poles and wires along the 6 miles of line. The additional tracks were brought into use on August 24, 1942.

Another main-line quadrupling of major importance, providing increased facilities for the movement of goods traffic, was that between Severn Tunnel Junction and Newport, G.W.R. The work was divided into two sections of approximately equal length, each linking up with previously existing intermediate and end sections of four lines. The works were brought to a successful conclusion within the short period of 6½ months from the time they were authorised, against the original estimate of 18 months. In view of the importance of the plan, exceptional priority was given to the job, which was further facilitated by the spirit of enthusiasm that imbued both the G.W.R. departments concerned, and also the contracting firm, Sir Robert McAlpine & Sons. The new lines were opened for traffic in sections between August 10, 1941, and November 12, 1941. They were described in *The Railway Gazette* of March 20, 1942 (pages 399-401), but at that time it was not permissible to reveal the location.

A further work to increase line capacity consisted in the improvement of some 44 miles of former single track of the G.W.R. extending from Didcot to Winchester *via* Newbury. Although the line connects two important main routes, it did not carry a heavy traffic in pre-war days, but was required to form a wartime north-south communication of importance. When it was built, some 60 years ago, the formation and bridges were made sufficiently wide to accommodate double tracks, although a single track only was laid. Subsequently, weathering of the banks took place, and the accumulation of consequent deposits became overgrown, with the result that from time to time the track has been slewed towards the centre of the formation to obtain the clearances required by new standards, particularly under arched overbridges. Accordingly, it would not have been possible to lay an additional track throughout the entire length without considerable adjustment of formation, and it was decided to allow part of it to remain single track, and to increase the carrying capacity by additional crossing facilities and other improvements, such as lengthening loops from 300 yd. to 550 yd.

By reason of these engineering works, the passenger service on the whole line from Didcot, through Newbury, to Winchester (Cheese Hill), was suspended on Tuesday, August 4, 1942. A passenger road service, with strictly limited accommodation, was provided by railway-associated buses in lieu of the rail service. Passengers were picked up and set down only at stations and halts, and tickets were required to be taken at the station booking office in the usual way. Rail service was restored on March 8, 1943. The 18-mile section from Didcot to Newbury was doubled throughout, and brought into use as a double line on April 18, 1943. From Enborne junction at Newbury the line was doubled for a length of 2 miles



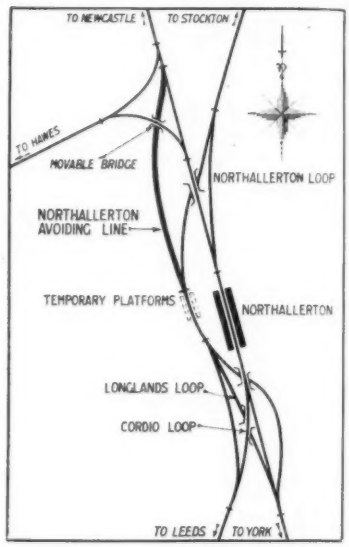
New connection near Winchester to avoid conflicting movements

to Woodhay, and opened on March 8, 1943, but on the 23 miles thence to Winchester additional passing places and lengthened loops sufficed. These improvement works were described and illustrated in *The Railway Gazette* for December 31, 1943 (page 665). At Worthy Down, near Winchester, an entirely new single-line connection for up traffic was made with the main line of the Southern Railway where the latter crosses the G.W.R. line on an overbridge, and brought into service on May 5, 1943. The new connecting line of about a mile in length runs through a large new cutting over a new embankment and bridge.

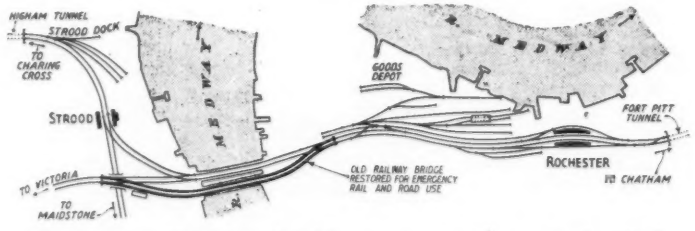
To afford an alternative means of crossing the River Eden between Carlisle and Scotland in the event of damage to the existing two-track viaduct, a new viaduct was constructed, and brought into use on March 14, 1943. At the same time, considerable extensions were made to the through goods lines to Etterby Junction on the north side of the river to give increased facilities for freight train working. Alterations were also made to the locomotive depot at Kingmoor to expedite engine movements to and from Carlisle.

Additional lines were provided for a distance of 6 miles between Pilmoor and Thirsk on the York—Newcastle main line of the L.N.E.R. This work involved the demolition and rebuilding of Pilmoor and Sessay stations and platforms, the demolition of Thirsk Station, and the conversion of the existing platforms into island platforms; 9 culverts, 10 bridges (including a footbridge) were extended on each side of the railway, 3 underbridges were closed and filled in, and one overbridge was demolished. Another overbridge and a footbridge were rebuilt. Extensive signalling alterations were also made, which included the provision of a new signal box and two new ground frames, and alterations to three other boxes.

Another work of some interest on the York—Newcastle main line was the provision of an emergency avoiding line at Northallerton. As shown on the accompanying sketch, this provided an alternative route to a short but important stretch of double-line railway, and it involved crossing the existing single-line branch to Hawes. The relations of levels do not allow of the avoiding line crossing over or passing under the branch, but compelled the former to be laid at a level 5 ft. below the latter. Thus, if the avoiding lines were in use, a part of the branch was not available for traffic, although fortunately the branch has a secondary access. The necessary "opening" through the branch line was arranged by the construction of a movable bridge of an unusual kind, but withal simple and

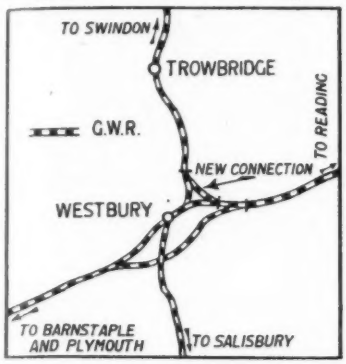


Emergency avoiding line at Northallerton which involved an unusual movable bridge



Emergency rail and road bridge arrangements across the River Medway between Rochester and Strood

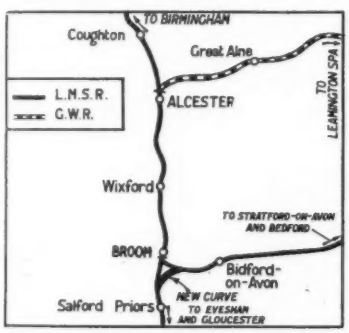
free from expensive mechanism. This bridge was described and illustrated in *The Railway Gazette* for November 7, 1941 (pages 476-480), and its signalling



New curve inserted at Westbury in 1942 to enable London traffic to run direct to Trowbridge

formed the subject of a separate article in our issue of July 3, 1942 (page 8). On neither occasion was it permissible to reveal the location. This Northallerton avoiding line was finished in November, 1941.

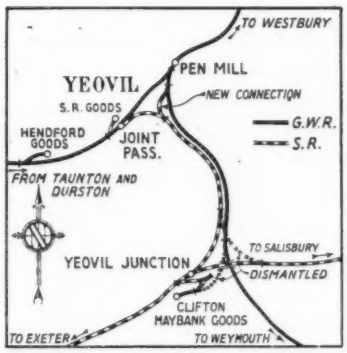
As an alternative means of crossing the Medway at Rochester, Southern Railway, the old London, Chatham & Dover Railway bridge, which had been out of



New curve at Broom, avoiding reversal in Broom Station

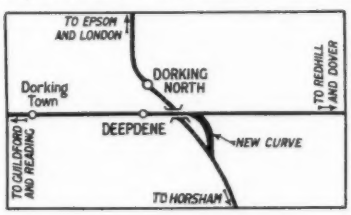
use for many years, was reconditioned at an estimated cost of £70,400 to carry both road and rail traffic over the river in the event of either of the other two bridges being destroyed. This is a double-track bridge 500 ft. long, or 850 ft. including approach spans. Some 450 tons of new steel work and 12,000 cu ft. of timber were used in the reconstruction, which included laying an entirely new floor incorporating steel cross girders, rail girders, and longitudinal deck timbers. As the structure had lacked attention during the long period of disuse, a detailed examination of the main girders was made, to ensure that no weakness had developed. In addition, connecting bridges were built at each end to allow road traffic to pass on to the bridge from the existing road bridge. Conductor rails and other equipment were stored clear of the roadway portion to enable the tracks to be electrified. The work was completed in November, 1942, but was never used, as no emergency arose which required such a diversion.

Finally, a few links remain to be recorded briefly. The first is at Westbury, G.W.R.,



Through-running connection between G.W.R. and S.R. at Yeovil

where a curve was inserted on July 30, 1942, enabling traffic from London to run direct on to the Trowbridge line, avoiding reversal in Westbury. A similar curve on the L.M.S.R. at Broom, brought into use on September 28, 1942, enables traffic from the Stratford-on-Avon direction to run direct to Evesham, avoiding reversal in Broom Station. At Romford a running-line connection was inserted on July 21, 1940, between the L.M.S.R. and the

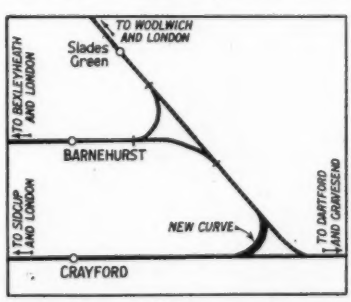


Emergency Southern Railway curve at Dorking

L.N.E.R. At Wrexham, a junction was inserted between the G.W.R. and the L.N.E.R. on February 9, 1943. At Yeovil, a double-line junction was brought into use on October 13, 1943, linking the G.W.R. Weymouth line and the Yeovil branch, S.R.

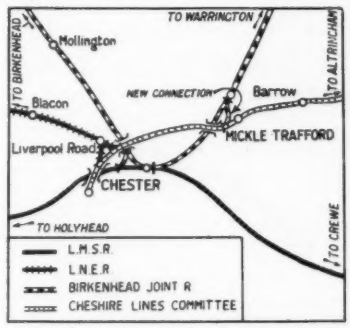
Mention should also be made of the reinstatement of a junction at Red Post (west of Andover) between the S.R. main line to the West, and the former Midland & South Western Junction Railway, now part of the G.W.R. At Red Post, the one-time single-line junction had been removed, but to meet wartime needs, a double-line junction was inserted on September 5, 1943, and the section of line between Weyhill and Red Post Junction was doubled.

At Mickle Trafford a junction between



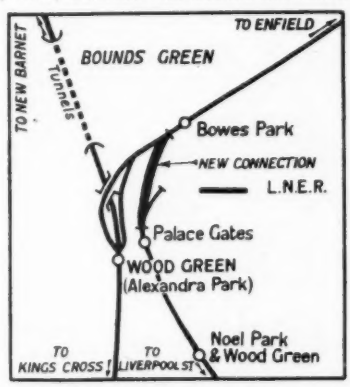
Double-line chord connection at Crayford, Southern Railway, between Dartford Loop line and North Kent line

the Cheshire Lines Railway and the L.M.S.R. & G.W.R. Joint Line was completed on October 4, 1942. Until 1896



Wartime connection at Mickle Trafford between the Cheshire Lines Railway and the Birkenhead Joint Line of the L.M.S.R. and G.W.R.

there was a similar connection but facing the opposite direction. At Crayford, S.R., a double-line chord connection was brought into use on October 11, 1942, between the Dartford Loop line and the North Kent line. At Dorking, an emergency curve was completed on September 3, 1941, between the Central and Eastern



Bounds Green link of 1944 between G.N. and G.E. Sections, L.N.E.R.

Sections of the Southern Railway, and was for working only by hand lever on the ground, subject to special arrangements with adjoining signal boxes on both routes. It has never proved necessary for this connection to be used.

What was probably the last connection of its kind to be inserted during the recent European war was that at Bounds Green, L.N.E.R. Here a direct single-line connection was laid in between the ex-Great Northern Enfield branch and the ex-Great Eastern Palace Gates branch. It was brought into use on July 9, 1944, and enabled through goods trains to be worked from the main line of the Great Northern Section, L.N.E.R., direct to Temple Mills sidings and the London Docks area by means of the Stevenage—Cuffley line, Palace Gates, Seven Sisters, South Tottenham, and Coppermill Junction.

In conclusion, it should be mentioned that all these wartime works have been constructed at Government expense, and remain Government property. Their ultimate fate is a matter for negotiation between the Government and the individual railway companies at the conclusion of the Railway Control Agreement.

Excitation Circuits for Regeneration in D.C. Locomotives

Some results of comparative tests

By O. H. Hahn, Ph.D., M.Sc.(Eng.), A.M.(S.A.), I.E.E.

THE two fundamental circuits in practical use for obtaining the drooping characteristic required for regeneration in d.c. locomotives are indicated in principle in Figs. 1 and 2. In the former a stabilising resistor is used carrying the sum of the regenerated and field currents with the result that the P.D. across it regulates the field current inversely with the armature current. In the second system the regenerated current weakens the exciter field differentially, thus also varying the main field current inversely with the regenerated current. With the notation of the figures we have for the first case :

$$I_f = \frac{e}{R_f + R_s} - I_a \cdot \frac{R_s}{R_f + R_s} \quad \ldots \quad (1)$$

In the second case we have :

$$I_f = \frac{e_0}{R_f + r} - I_a \cdot \frac{N}{i \cdot n} \cdot \frac{e_0}{R_f + r} \ldots \quad (2)$$

where e_0 is the voltage of the exciter when there is no regenerated armature current passing, it being assumed that the exciter voltage is directly proportional to the effective number of ampere-turns on the exciter fields. Equation (2) thus applies only if the iron circuit of the exciter is unsaturated and the machine is worked on the straight line portion of the magnetisation curve. With this proviso both systems can be designed to give the same static characteristic.

Comparing the capacities of the exciters we find that for the stabilising resistor system of Fig. 1 the exciter must generate sufficient voltage to overcome the sum of the voltage drops across the stabilising resistor and the main fields. Using standard series wound traction motors it can be shown that, to remain within the limits set by good commutation requirements, the resistance of the stabilising resistor becomes of the order of the main field resistance. This means that the voltage—and hence the output—of this exciter

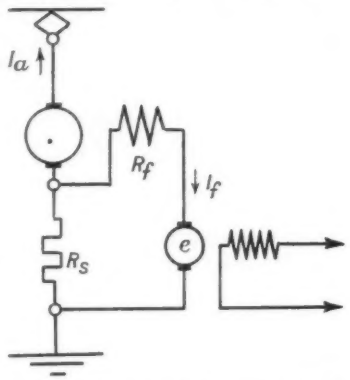


Fig. 1—Use of stabilising resistance carrying both regenerated and field current

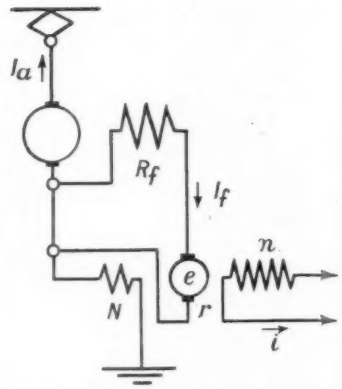


Fig. 2—Differentially compounded exciter

comes out at about twice that of the de-compounded exciter of Fig. 2.

The high current to be carried by the stabilising resistor makes the use of grid resistors necessary. If these possess a fairly high temperature co-efficient and their cooling is affected by external influences, such as speed and wind, there may be differences in their resistance values and thus in their stabilising effect. The differentially compound-wound exciter on the other hand yields consistent results.

Under transient conditions due to sudden load changes the differentially compound-wound exciter possesses greater magnetic inertia, due to the additional inductance of the exciter field. This was reduced in some experimental 3,000-volt d.c. locomotives, purchased by the South African Railways in 1939, by providing a

(*Continued on page* 275)

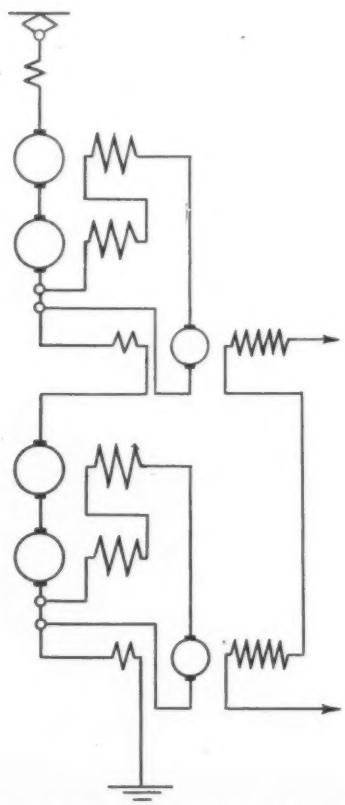


Fig. 3—Double exciters of differential type in series grouping

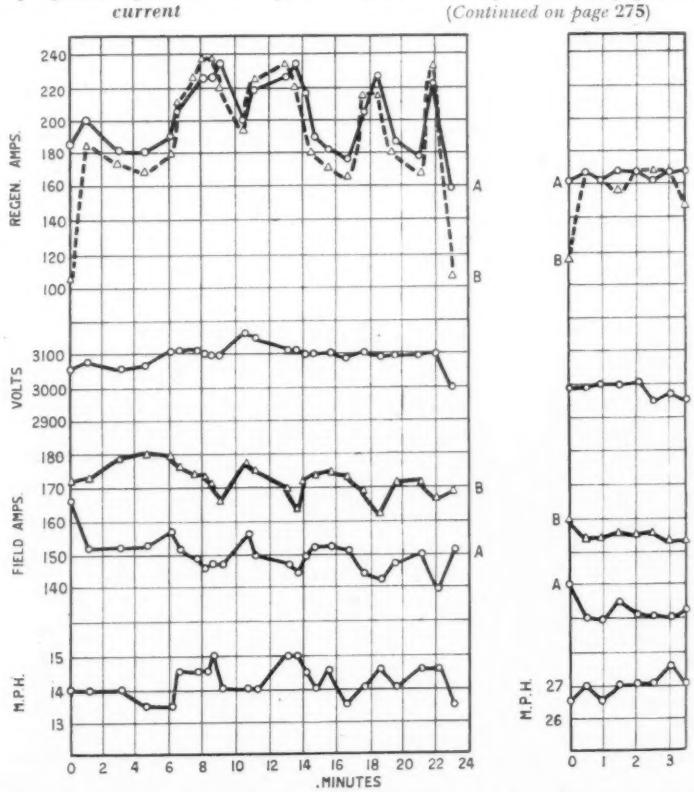


Fig. 4—Results obtained from similar equipments except that "A" had the stabilising scheme of Fig. 1 and "B" was provided with exciters differentially coupled

Maintenance Works on the Southern Railway

Recent renewals in reinforced concrete

FROM time to time, notices prefaced with the words "owing to engineering works" advise the public that temporary interference in their regular way of travel will arise. It may be of interest to bring to review two operations coming under this category which have been carried out recently in the London area of the Southern Railway.

At Holborn Viaduct, the important freight traffic route from the Northern lines *via* Snow Hill to the Southern Railway system passes under the station, and part of the latter is carried over the Snow Hill tracks on girders. The Snow Hill lines rise steeply from Farringdon at this point to gain the same level as the other tracks over Ludgate Hill, and the girder work is exposed to severe corrosion from the sulphurous fumes of the blast from locomotives working traffic up the bank.

Several of these girders were repaired some time ago, but the carrying out of the repairs on site, working off trestles during Sunday daytime possessions only, was found to be lengthy and expensive, and at the best only postponed further similar repairs for a relatively short time.

When examination showed that a number of the other girders required repairs, it was decided to approach the Traffic Department with a view to obtaining a long enough complete possession of two platform lines to enable complete renewal to be carried out, using steel encased in concrete for the new construction.

The necessary facilities were afforded and the work was planned to be carried out at a time when there would be long daylight and reasonable weather could be expected.

Platform roads 5 and 6 were given to the Engineer for 12 days' complete possession, and during this time a length of one platform was stripped out and the whole of the existing girderwork over the Snow Hill lines removed and the new steelwork laid in and encased in concrete.

The left-hand illustration at the bottom of this page shows six of the new girders in position and two of the old ones remaining. The space underneath the girders was enclosed with steel plates suspended from short angle bars packed off the new girders to form a deck on which to lay the concrete. After the reinforcing rods had been laid in position as shown in the right-hand illustration, the placing of concrete for the encasement of the beams and to form the slab between them was put in hand. Quick-setting cement was used, and after sufficient time had elapsed, the bolts holding the steel deck were burnt off at the level of the top of the concrete slab to enable the encasement of the top of the beams to proceed, leaving the removal of the steel plates to be carried out from the underside at convenient opportunities, without delaying the traffic below.

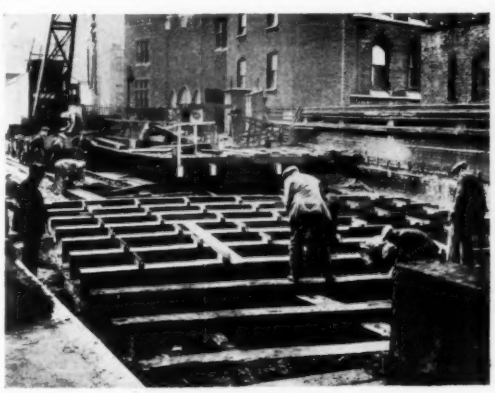
Subsequently, the portion of platform which had been removed was made good in brickwork and concrete slabs, and the tracks were relaid on the new deck. The successful completion of this work eliminates maintenance expenditure on this structure for a long time to come.

A similar operation was carried out at Brixton Junction (shown in the first illustration) when the timber floor of the bridge over Brixton High Road was reconstructed in concrete in two week-ends, but in this instance the existing ironwork was encased. Normally possessions of the junction located on this bridge have to be limited to a few hours at a time because of the dense track occupation by steam and electric passenger and inter-railway goods trains, but owing to the special arrangements which the Traffic Department was able to make in this instance, it was possible to complete the work in two week-ends.

The policy of eliminating constantly recurring maintenance work at such places as these by reconstruction on modern lines, is undoubtedly a wise one since, apart from the avoidance of continual expense in upkeep, frequent traffic interruptions are obviated.

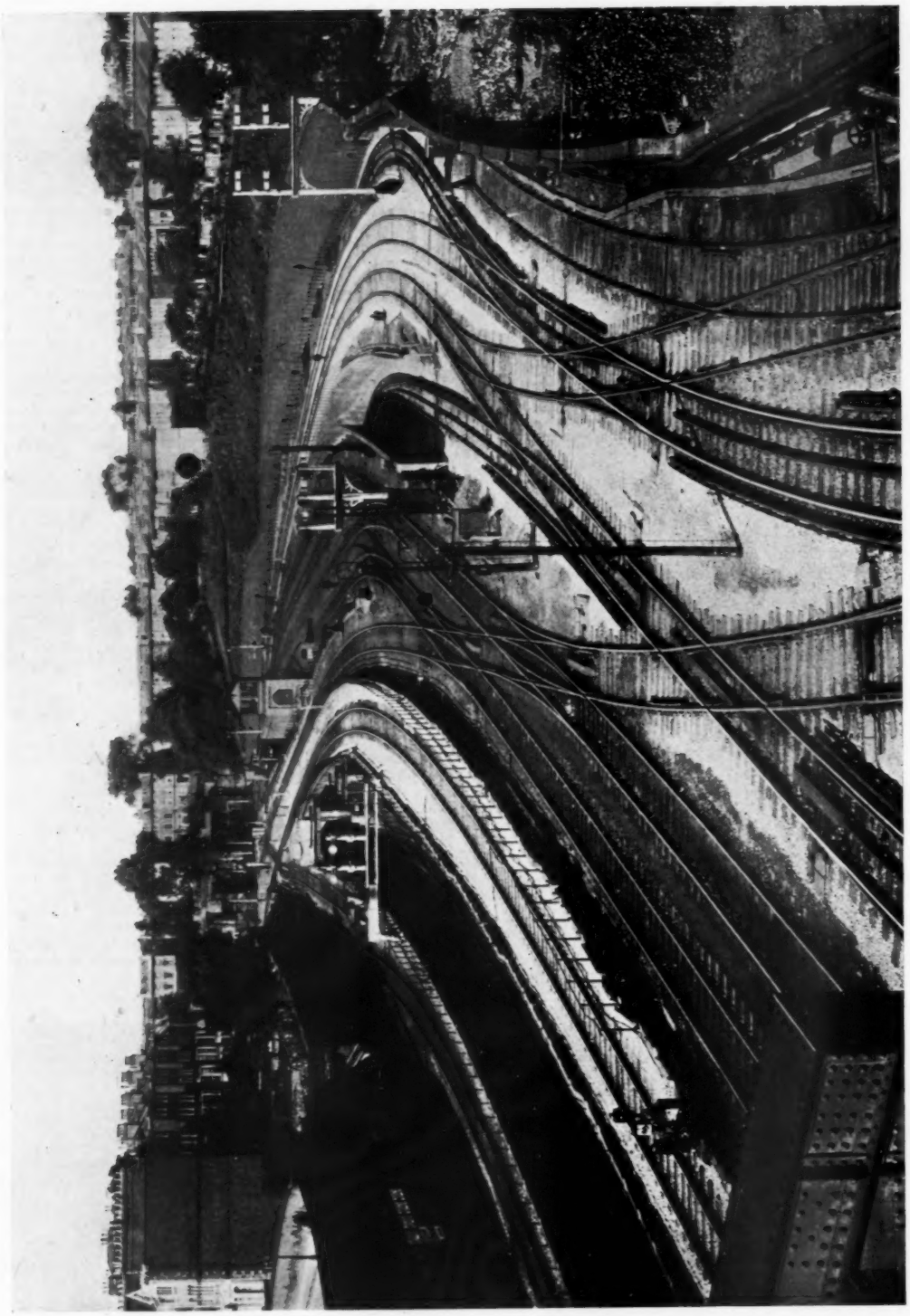
The closest co-operation between the departments of the Traffic Manager and the Chief Civil Engineer are producing these excellent results, which are of mutual benefit to the railway company and the travelling public.

SWISS FEDERAL RAILWAY RESULTS.—Working receipts of the Swiss Federal Railways for the first half of 1945 aggregated fr. 221,800,000, against fr. 252,400,000 for the same period in 1944, a decline of 12·1 per cent. The rise in passenger receipts to nearly fr. 115,000,000 or 11½ per cent. more than in the same period of 1944 (fr. 102,900,000) was offset by the heavy drop in goods, luggage, livestock and mail receipts. These totalled fr. 98,900,000 compared with fr. 140,400,000 in the corresponding period of 1944, a decline of 29½ per cent. Net working expenditure was higher by fr. 8,000,000.



Placing the new girders in position

Reinforcement ready for the concrete



The burrowing junctions between Camden and Primrose Hill Tunnels, L.M.S.R. This view was taken from Chalk Farm Station roof on August 23, 1922, shortly after the completion of the extensive works involved in the Chalk Farm to Kensal Green widening carried out by the London & North Western Railway

RAILWAY NEWS SECTION

PERSONAL

The Hon. Lionel Chevrier, Canadian Minister of Transport, has announced the re-appointment of Mr. R. C. Vaughan as Director of the Canadian National Railways for another three years, as from October 1.

Mr. H. D. M. Wright and Mr. L. R. Honeywill have accepted invitations to join the board of the Butterley Co. Ltd.

Mr. James Mears, Ironstone Mines Manager of the Redbourne (Lincs.) works of Richard Thomas & Baldwins Limited, has died at Scunthorpe, aged 64.

Mr. R. W. Reynolds-Davies has been appointed Deputy Secretary of the Institute of Fuel.

We regret to record the death on September 1, at the age of 72, of Mr. Arthur Ellis, M.B.E., M.Inst.C.E., M.I.Mech.E., M.I.E.E., Consulting Engineer, of Cardiff. Mr. Ellis served as a premium pupil under the Hon. Sir Charles A. Parsons, inventor of the steam turbine. Later, he was appointed Engineer to the Cardiff & Penarth Harbour Tramways Company, and became responsible for the lay-out of the Cardiff Tramway system, which started operating in May, 1902. In 1900 he was appointed Electrical Engineer to the Cardiff Corporation, but in 1919 he left the corporation's service to open practice as a Consulting Engineer on his own account.

Lagonda Limited announces that it has appointed Mr. Roderic W. Waugh to handle Public Relations and Overseas Sales. He will operate from 16, Upper Grosvenor Street, London, W.1. Mr. Waugh commenced his career with the Great Western Railway. Later he went to manage first the London, then the New York and Paris, offices of the Morgan Pope Company, Travel Agents, and in 1931 to Imperial Airways to conduct its business-promotion activities. He has been for many years a member of the Travel & Industrial Development Association of Great Britain & Ireland.

The retirements are announced of Mr. J. M. Greathead, Assistant General Manager (Technical), and Mr. G. E. Chittenden, Assistant General Manager (Commercial), South African Railways & Harbours.

Mr. Eben. C. Smith, who has recently retired, entered the service of the Great Southern & Western Railway (Ireland) in July, 1901, and was employed as clerk in the Claims Department at Kingsbridge Station, Dublin. He assisted the then Traffic Manager in the preparation of evidence to be given before the Vice-Regal Commission on Irish Railways in 1907, and attended the sittings of the Commission with him in London. From March, 1911, he was Personal Assistant to Mr. C. H. Dent, the first General Manager of the company, and he has held a responsible position in the same office for the past 34 years under six successive General Managers of the G.S.W.R., the G.S.R., and the Irish Transport Company.

Mr. George Mills, J.P., F.S.S., M.Inst.T., Divisional General Manager, Southern Area, London & North Eastern Railway, who, as recorded in our August 24 issue, retires on September 15, started his railway career in the service of the North British Railway in 1895 and was appointed Station Auditor in 1906, which position he held for 10 years. In 1920 he was made Special Auditor of the accounts of the spending departments and when in this position he undertook the preparation of the N.B.R. Government compensation accounts arising out of the control of the railways during the war of 1914-18. When the N.B.R. was absorbed into the L.N.E.R. in 1923, Mr. Mills' experience stood him in good stead and he was chosen as an Assistant to the Chief General Manager with special duties dealing with rates, statistics and accounts. During this period, he assisted Sir Ralph Wedgwood in matters connected with standard rates and charges, and other subjects. In 1929, Mr. Mills returned to Scotland as Assistant Goods Manager in Glasgow, and in January, 1932, he was made Goods Manager, Scottish Area. A little over three years later he was appointed Divisional General Manager, Scottish Area, and in July, 1941, took over the corresponding post for the Southern Area, which comprises roughly all territory covered in pre-grouping days by the Great Eastern, Great Northern and Great Central Railways, extending from London northwards to Liverpool, Manchester, Leeds and Bradford, and embracing the whole of the East Coast up to south of the Humber. Mr. Mills is a Fellow of the Royal Statistical Society, a Fellow of the Royal Geological Society (Edinburgh), a Justice of the Peace for the City of Edinburgh, and Lt.-Colonel in the Engineer & Railway Staff Corps, R.E. (T.A.). He is a former Vice-President of the Institute of Transport, the Gold Medal (Operating) of which he obtained in 1938. His chief recreation is mountain climbing.

(*See editorial note, page* 257).

Mr. George Mills
Divisional General Manager, Southern Area, L.N.E.R., 1941-45

MINISTRY OF FUEL & POWER

Mr. Michael Romain, Director of Public Relations at the Ministry of Fuel & Power, at his own request, has been released from this post to return to industry.

We regret to record the death on September 7, at the age of 69, of Mr. John Bromley, who was General Secretary of the Associated Society of Locomotive Engineers & Firemen from 1914 to 1936.

Mr. R. C. Flowerdew, Extra Assistant, Office of Divisional Superintendent of Operation, Derby, L.M.S.R., who, as recorded in our August 10 issue, has been appointed District Passenger Manager, Leeds, joined the L.N.W.R. at Stockport in 1904, and later was transferred to the staff of the District Superintendent at Manchester (Exchange). During the 1914-18 war he served with the Railway Operating Division, R.E., in France and Belgium. On demobilisation in 1919, he returned to his old position at Manchester, and at the amalgamation in 1923 was transferred to the Office of the Western Divisional Superintendent of Operation at Crewe, and took charge of the section dealing with the conveyance of special traffic by passenger trains. In 1925 Mr. Flowerdew went back to Manchester to supervise passenger-train working in and out of London Road Station, and afterwards was appointed Assistant District Controller at Patricroft, Liverpool (Lime Street), and Chester. In 1932 he was transferred to London to take charge of the Passenger Train Services Section under the Chief Commercial Manager, and in 1933 was appointed Assistant District Passenger Manager, Sheffield, and in 1935 Stationmaster, Preston. On the inauguration of the L.M.S.R. School of Transport at Derby in 1937, Mr. Flowerdew was appointed to the school staff as Operating Instructor, which position he held for two years before being appointed Extra Assistant to the Divisional Superintendent of Operation, Derby. On the outbreak of war in 1939 he joined the Railway Transportation Branch, R.E., in which he served 5½ years and rose to the rank of Major.

We regret to record the death, at the age of 63 years, on September 3, of Mr. C. E. Boxall, District Goods Manager, Cardiff, G.W.R. Mr. Boxall joined the company's service in 1896 at Poplar, and in 1903 he was transferred to the London District Goods Manager's office. On his return from active service in 1918, he was appointed to the Chief Goods Manager's office, and three years later was transferred to the Horse Department, where he

XUM

Mr R. C. Flowerdew

Appointed District Passenger Manager, Leeds, L.M.S.R.

The late Mr. C. E. Boxall

District Goods Manager, Cardiff, G.W.R., 1936-45

Colonel R. W. Bailey

Appointed District Engineer, Perth, L.M.S.R.

served first as Chief Clerk to the Horse Superintendent, and then as Cartage Superintendent at South Lambeth. He returned to the Chief Goods Manager's office in 1923 as Chief Clerk to the Development Agent, and in 1928 became Assistant Development Agent. He was transferred to Birmingham the next year as Goods Agent, and returned to London in 1931 to be Goods Superintendent at Paddington. He was appointed Assistant District Goods Manager at Cardiff at the end of 1934 and became District Goods Manager, Cardiff, in 1936.

Mr. F. D. FitzGerald, who has been Acting Secretary of the Traders' Road Transport Association, has been appointed National Secretary.

Colonel R. W. Bailey, T.D., M.Eng., A.M.Inst.C.E., Assistant to District Engineer, Manchester, L.M.S.R., who, as recorded in our August 10 issue, has been appointed District Engineer, Perth, was educated at Wade Deacon Grammar School, Widnes, and at Liverpool University, where he was Bartlett Scholar. From 1922 to 1924 he was a pupil of Mr. A. P. Ross, then Engineer to the Cheshire Lines Committee (now Chief Stores Superintendent, L.N.E.R.). In 1925 Colonel Bailey was appointed Assistant Works Manager at the Warrington Works of the Cheshire Lines Committee, and in 1932 became Works Manager & Outside Assistant to the Engineer to the C.L.C. In 1937 he was appointed Assistant to District Engineer, Manchester District, L.M.S.R. Colonel Bailey was largely concerned with development at the Newton Heath shops of the Company. In 1939 he was embodied with the Royal Signals (Territorial Army) commanding the 2/55th Divisional Signals, and in 1940 proceeded overseas. He commanded the 4th L. of C. Signals during the first Western Desert campaign, and participated in the first siege of Tobruk. From 1941 to 1945 he was Chief Signal Officer, Suez Canal Area, Alexandria, Basra, and to the Allied Military Liaison H.Q. to Greece. He participated in the Greek revolt, 1944. He was mentioned in despatches. Colonel Bailey has been for many years lecturer in engineering subjects at the Widnes Municipal Technical College.

Colonel C. J. H. W. Francis

Stores Superintendent, Southern Railway, 1923-45

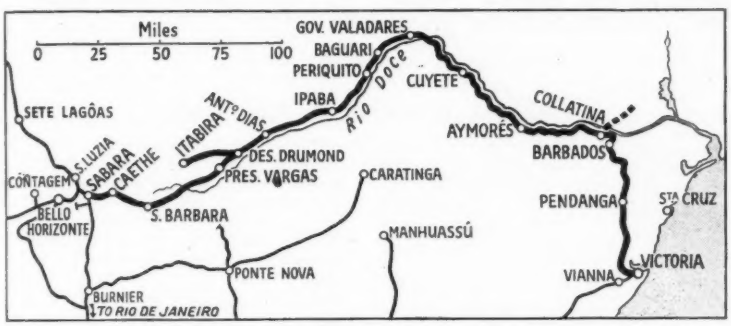
Colonel Charles J. H. W. Francis, C.B.E., as recorded in our August 31 issue, retired on August 31 from the position of Stores Superintendent of the Southern Railway, which he has occupied for over 22 years. He was born in 1879 and educated at Clifton. He served his time with the London & North Western Railway at Crewe and was a pupil under the late Mr. F. W. Webb. He completed his training at King's College, London, and afterwards served on the testing staff of Willans & Robinson, Rugby. Later he was appointed an Assistant Inspecting Engineer to the Egyptian and Sudanese Government in Belgium and France. He became Chief Assistant to Sir A. L. Webb in London, and was responsible for all supplies to the Egyptian State Railways and other Egyptian Government Departments. During the 1914-1918 war he joined the Royal Engineers and was attached to the Inland Waterways & Docks Directorate. In January, 1918, he was promoted Assistant Director, Inland Waterways & Docks. He was twice mentioned in despatches and received the C.B.E. in February, 1919. In February, 1919, he was appointed a Controller, Disposals Board, Ministry of Munitions. In September of that year he was transferred to Richborough, in charge of disposals work. At the beginning of 1920 he was appointed Chief Storekeeper & Purchasing Agent to the London & South Western Railway, and he became Stores Superintendent of the Southern Railway in 1923. The value of materials purchased by his company during 1944 amounted to £7,340,000, and the individual issues of stores to various using departments totalled 814,626. On account of the war stores had to be dispersed to a very large number of comparatively inaccessible places, thereby increasing the difficulties of distribution. (*See editorial note, page* 257).

The Iron Ore Railway of Brazil

The reconstructed Victoria & Minas Railway can handle 1½ million tons of iron ore annually

The enormous disturbances of wartime to normal sources of supply gave an added importance to the region called Rio Doce (Sweet River) in Brazil. This region of about 25,000 sq. miles contains vast supplies of iron ore, and also gold, manganese, bauxite, nickel, mica, rock crystal, and semi-precious stones. Hitherto the lack of adequate transport has been the main difficulty in connection with the industrial development of the area, and on more than one occasion we have referred to the progress with improvements and extensions to the Victoria & Minas Railway that provides the principal access to the coast.

Presidente Vargas (formerly called the village of Itabira), near the site of the principal iron ore mine, and Victoria, the port, are on virtually the same latitude, and are about 300 miles north of Rio de Janeiro. The railway, however, bends about 100 miles north-east from Itabira before turning south-eastward as it follows the tortuous course of the Rio Doce; a short distance from the coast the railway turns sharply south to reach Victoria, whereas the river flows east to the sea.



The Victoria & Minas Railway and adjacent lines

The task of harnessing this component to the Allied war machine devolved almost entirely on Brazilian and American officials and technicians, with British interests providing the shipping and the market for the ore. That the wartime undertaking fell behind schedule is hardly surprising, in view of the handicaps encountered. The weakest link in the chain carrying the iron from Brazil to Great Britain was the Victoria & Minas Railway. At the time the Rio Doce project was initiated in 1942, the railway extended from the port, in the State of Espirito Santo, to Des Drumond Station, in Minas Geraes, where it connected with the Central of Brazil Railwaya. An additional 22½ miles to extend the Victoria & Minas Railway to the iron mountain at Itabira, was finished soon afterwards. This single-track metre-gauge railway, originally built by a French company, was constructed by a contractor who was paid a fixed amount per km. of track; consequently, it is stated that, to increase the length and make more money, he never built a straight line if there was any excuse for a curve. When the Rio Doce area became important to the Allies, the railway not only needed straightening and regrading, but was practically worn out. Relocating and rebuilding the railway has been the major task of the Companhia do Vale Rio Doce.

The amount of ore that could be transported over the railway has been the limiting factor so far on the quantity being taken from the mine. This situation has its origin in the checkered history of the mine itself. In 1910, a company owned by an English syndicate was mining at Caue (in the Itabira neighbourhood), but its product was gold, not iron. Old tunnels used in these operations can still be seen. It is possible that gold may again be produced from the inferior "jacutinga" ore of Caue, but only as a by-product. When the gold began to peter out in the English workings, the owners considered the possibilities of exporting the iron ore they had been discarding. Negotiations were begun with the Brazilian Government for concessions that would stabilise export duties on the ore for a long period, and these negotiations continued after another English company (the Itabira Iron Ore Co. Ltd.) acquired the property. This company, which was incorporated on March 31, 1911, also owned a direct controlling interest in the railway. For many years its activities were hampered by political difficulties and jurisdictional questions between Federal and State Governments.

Then American interests became involved when Percival Farquhar visited the iron mountain and became interested. He was an American who had gone to Brazil to reorganise and modernise the tramway system of Rio de Janeiro for a Canadian syndicate of which he was one of the founders; these interests still operate the electric power and tramway lines in the Brazilian capital. He interested American capitalists and engineers in the iron project, and conducted prolonged negotiations for the government concessions. His group proposed to build a more efficient and shorter railway, direct from Itabira to Santa Cruz, 34 miles north of Victoria, which, because of favourable gradients, would be capable of hauling 10,000 tons of ore per train. An option was obtained on the assets of the English company owning the mine and a majority interest in the railway, and a further option to assure two-thirds control of the entire enterprise had been secured just before the German occupation of France in 1940. Farquhar was active in forming a Brazilian company that actually operated the iron mine for a time, conveying the ore by motor lorry from Itabira to Des. Drumond for re-shipment on the railway.

After the Inter-American Conference of Foreign Ministers at Rio in January, 1942, the confused status of the various interests involved in the mine and railway was resolved by an agreement signed in Washington by the United States, Brazil, and Great Britain. The British Government, to obtain the high-grade Brazilian ore, agreed to pay off the English shareholders and present the shares to the Brazilian Government. That Government extinguished the interests of its nationals, and paid Farquhar's claim based on his option. The United States, through the Export-Import Bank, loaned Brazil $14,000,000 for renovating the railway and getting out the iron ore. This loan is being repaid at the rate of 15 cruzeiros for every ton of ore shipped from the mine, plus 2 cruzeiros for every ton of ore transported on the railway. British purchases of the ore are at 100 cruzeiros a ton in cash.

With the way thus cleared by the Washington agreement, the Brazilian Government absorbed both the mine and railway, and established the Companhia do Vale Rio Doce to administer the project. Dr. Isreal Pinheiro, former Minister of Agriculture of Minas Geraes, was nominated president. The directors include three Brazilians and two Americans. The company's capital is 300,000,000 cruzeiros, subscribed largely by the Brazilian Government, with the public holding some 6 per cent. preferred stock. Maximum dividends are limited to 15 per cent., with all profits above this amount set aside for the improvement and development of the Rio Doce region.

On the basis of the Washington agreement, the new company set to work. American engineers were called in; the railway extension from Des. Drumond to Itabira was completed; spur tracks were laid to the foot of Caue; more rolling stock was added as it could be procured and shipped from the United States; and contractors began straightening the line, improving the roadbed, and laying heavier rails. This work received new impetus when the Raymond-Morrison-Knudsen Co., an offshoot of one of the famous "Six Companies" associated with Henry Kaiser in building Boulder Dam and other great public-works projects in the West of the U.S.A., moved down from the United States with a contract to build a stretch of about 75 miles of railway. This was the most important part of the railway renovation, as it was necessary to eliminate switchback gradients through the foothills between the Rio Doce and Victoria. The American engineers, since getting their full force on the job in April, 1944, have built approximately 75 miles of new railway, bored a tunnel 1 km. (⅝ mile) long, and constructed nine major bridges. Their job shortens the line by about 16 miles, equivalent to a one-hour run for a goods train, and reduces the maximum grade from 2½ per cent. against the load to one-half of 1 per cent. They expect to complete the present contract in the immediate future, and then may be given additional work in other sections.

One of the next steps planned by the Companhia do Vale Rio Doce itself is a 75-mile extension of the Victoria & Minas Railway westward to Bello Horizonte This would give the capital of Minas Geraes a more direct outlet to the sea by rail than it now has, and should greatly increase the amount of commercial goods carried by the Rio Doce line. Already a considerable part of the profits of the company, while mining operations are restricted, comes from the increased volume of commercial goods resulting from the industrial development of the whole valley. There are unofficial rumours of the possibility of double tracking the railway and eventually electrifying it.

Gloucester Railway Carriage & Wagon Co. Ltd.

The fifty-seventh ordinary general meeting of the Gloucester Railway Carriage & Wagon Co. Ltd. was held on August 30. Sir Leslie Boyce, K.B.E., Chairman and Managing Director, presided.

The following is an abridged report of the Chairman's address :—

I am pleased to report that the company has had another very successful year, and that the trading results of our associated company, Wagon Repairs Limited, and of our subsidiary, the Gloucester Foundry, have again been satisfactory.

The company's profit for the year, after making full provision for depreciation, all other revenue charges and contributions under the War Damage Act, 1943, was £148,207, compared with £137,224 for the previous year. The heavy burden of taxation is such that we have had to set aside no less than £106,000, or approximately 71·5 per cent. of these profits in order to meet the demands of the Exchequer. There remains a net surplus of £42,207, which, when added to £18,903 brought forward from last year, gives a disposable balance of £61,110.

As you will have seen from their report, your directors have appropriated £25,000 of this amount to the general reserve, thus raising it to £275,000, and they recommend that the rate of dividend be maintained at 7½ per cent., leaving £16,423 to be carried forward.

The accounts reflect the conservative policy of building up the company's resources which your directors have steadily pursued for many years. They disclose a very strong and satisfactory financial position, in spite of the very large amounts which the company has had to pay in taxation in recent years.

Our contribution to the war effort was one of which any industrial concern of our size might justifiably be exceedingly proud.

Following the outbreak of hostilities in 1939, we received an order for a large number of covered goods wagons which were urgently required by the French Government and other less urgent contracts were set aside to enable us to concentrate upon that order. Our shops were full of half-finished wagons of this special type when France fell and the order was suddenly cancelled. This placed us in a very serious dilemma as a large number of our men were immediately put out of work and, owing to Government controls, it was impossible to obtain a quick delivery of the necessary materials to enable us to turn to other contracts.

Our first step was to make an arrangement with the Government whereby we became one of the leading builders of the Churchill tank, which was then in the course of development, and which afterwards became one of the most famous, powerful and effective weapons on every front. We produced many hundreds of these vehicles and were still making them when Japan capitulated.

Concurrently with the building of Churchill tanks, we made huge quantities of munitions and of vitally important equipment for the Forces, including shells, Bailey bridges, rocket guns, part of Mulberry Harbour, etc., in addition to designing and building special heavy types of railway vehicles for the Ministry of Supply and Ministry of War Transport.

Such was the contribution to victory made by our company, and by smaller firms in this city, that the Under-Secretary of State for War publicly stated after the fall of Germany that no place of comparable size in the country had made a greater industrial contribution to the winning of the war than Gloucester. During the war two of our oldest workers, Mr. W. Shaw and Mr. A. Evans, were awarded the British Empire Medal, and I am sure you would wish to join with me in congratulating them both on their well-deserved honours.

A year ago I was able to state that our works had been maintained as well as possible within the limits imposed by wartime restrictions ; and I referred in detail to a number of carefully planned improvements some of which had already been effected. Since then, steady progress has been made in furthering these plans, which, when completed will provide us with excellent workshop conditions, the most modern plant and processes and a considerably increased production capacity and so place the company in a favourable position for the future.

From the orders and inquiries we have already received, there is no doubt that our works will be fully occupied in the building of all types of rolling-stock for railway systems throughout the world for several years, once the change-over to peace-time conditions has been completed. We are, however, faced with a very real difficulty in planning our production programme, and in getting back into our stride, owing to our having to wait upon a decision of the Government as to whether it will authorise the placing of orders by railway companies still under their control, which would materially affect our production priorities particularly on the carriage building side.

During the year we were fortunate in securing the services of a very experienced and highly qualified man in the person of Mr. F. W. Sinclair as our chief designer. At the time of his appointment Mr. Sinclair was a senior member of the staff on the rolling-stock side of the Crown Agents for the Colonies, and we are very grateful to them for having released him at our request.

I cannot conclude my remarks without expressing the warmest thanks of my colleagues and myself to the General Manager, Mr. G. C. Brinkworth, who has rendered outstanding service during the past year, and to the heads of departments, each of whom has made a notable contribution to the success of the company. We also wish to express our appreciation to the other members of the staff and to the employees for their loyal and devoted service.

The report and accounts were unanimously adopted.

Charles Roberts & Co. Ltd.

The annual general meeting of Charles Roberts & Co. Ltd. was held on September 6 at the registered offices, Horbury Junction, near Wakefield. Mr. Duncan Bailey, O.B.E., M.I.Mech.E., Chairman & Managing Director, presided.

The Chairman, in the course of his speech, said that the gross profit in the consolidated account amounted to £400,737, as compared with £383,181 for the previous year. Adequate depreciation for the works and plant and wagon fleet was provided in accordance with the company's usual practice, and the item for wagon depreciation was increased from £81,629 to £93,148, whereas normally it would be an annually diminishing figure. The company had added considerably to its fleet of wagons with modern stock, largely 16-ton mineral wagons of its own design, while withdrawing some of the older stock, and consequently writing off depreciation as allowed by the Inland Revenue on the increased capital value of the wagon stock. Effect had now been given to the decision of the Board to separate the wagon owning and hiring side of the business from the manufacturing side carried on in the works. This gave a clearer view of the position.

In addition to the final dividend of 10 per cent., less tax, making 15 per cent., less tax, for the year, it had also been decided as a special matter on this occasion to pay a bonus of 5 per cent. actual, less tax. The Board felt that stockholders were entitled to some special consideration in recognition of the splendid service which their establishment contributed toward the great victory won.

This company was established as far back as the year 1856. Its present sound position was not due to the abnormal circumstances produced by the war, but was the result of many long years of patient and diligent endeavour.

The war output accomplished by the company included, in round figures :—8,000 railway wagons, 2,000 railway tank wagons, 22,000 motor lorry bodies and trolleys, and over 3,000,000 various stampings and forgings and springs, etc., as spare parts. A large number of old steel wagons had also been repaired for the railway companies.

It remained to be seen what results nationalisation, or any other form of Government control for the running of our national industries, would produce, but, in any case, it was the bounden duty of every citizen to pull his full weight, in order to restore as far as possible a devastated world. This company had an order book containing large contracts for this country, the Continent, India and South America, and every possible effort was being made to increase output as labour became available. Over 400 of the company's workpeople were still in the Forces. While a very large number of young men must be retained in the Forces, it was more important than ever that all the non-producers at home who could possibly be spared should be liberated and turned over to productive effort. This country as a whole was a national workshop, whether under private or Government control, and if the overhead charges for non-productive labour were excessive and out of proportion to the production achieved, sooner or later costs would become prohibitive. In spite of all difficulties, these works had been kept in excellent order and were in first-class trim to carry out expeditiously and efficiently any work with which the company might be entrusted.

The report and accounts were unanimously adopted.

PIPELINE CONTRACT FOR STEWARTS AND LLOYDS.—The late Sir Allen Macdiarmid, in his speech at the annual general meeting of Stewarts and Lloyds Limited, on May 17 last, referred to the heavy demands likely to be made by the oil industry for tubular goods. It can now be stated that in addition to the abnormal requirements already placed by British-owned oil companies, Stewarts and Lloyds Limited has been entrusted with a contract to supply the pipeline for the Iraq Petroleum Co. Ltd. The present contract, totalling 120,000 tons of 16 in. dia. pipe, is the largest order for steel pipes ever placed in this country.

G.W.R. Oil-Burning Locomotives

A number of G.W.R. 2-8-0 freight locomotives is being fitted with the necessary apparatus for burning oil fuel instead of coal, in co-operation with the Anglo-Iranian Oil Company. The apparatus comprises a suitably designed burner, located at the front of the firebox, to which the oil fuel is fed by gravity. The fuel is atomised by a steam jet incorporated in the burner the necessary controls to meet the varying demands being placed in the cab in such a position as to permit of easy operation by the fireman.

The fuel tank, of 1,800 gallons capacity, is mounted on the tender and steam heating coils are provided to ensure that the temperature of the oil is such that the correct amount can be fed to the burner under varying atmospheric conditions. A thermometer is provided on the tank to enable the fireman to see that the fuel is maintained at the desired temperature, the necessary amount of steam for this purpose being under the control of the fireman. The ash-pan usually fitted for coal-burning has been modified to suit the use of oil fuel and the dampers are arranged to give the requisite amount of air to obtain the best results. The inside of the firebox is lined with firebrick with a high alumina content to protect the firebox plates from the intense heat which is generated. A valve and connection are provided for lighting up the engine, steam being taken from another engine or from the steam line in the engine sheds.

There will be storage tanks of 36,000 gallons capacity at the locomotive sheds where the oil-burning locomotives are stationed, the oil being pumped from these tanks to the fuel tanks on the locomotives. The storage tanks will be replenished from travelling rail tanks by means of steam pumps. The saving in coal will be 70 lb. per mile or on a run of 200 miles more than six tons for each engine.

Argentine Railways

British Ambassador calls for New Deal

Argentine citizens have swallowed German propaganda about exorbitant profits made by the British-owned Argentine railways, Sir David Kelly (British Ambassador to Argentina) said in a speech at a dinner of the British Engineering Transport Institutions, at Buenos Aires on September 6.

Urging that hundreds of millions of pesos should be spent immediately on modernisation of the railways, he said: "For over three years I have urged that the whole railway problem should be treated on a broad statesmanlike level, and that a new deal should be made by which the owners of the railways in co-partnership with the Argentine people should be enabled and encouraged to find all the new capital and materials needed for modernisation of the railways. This encouragement means in plain language allowing them to get some return for their capital."

He said the system was "one of the greatest single creations of British vision and enterprise outside the Empire," but added: "Unfortunately the true position is totally unrealised by the people of this country whom it so deeply concerns. During fifteen years hundreds of thousands of shareholders have been deprived of any return whatever upon capital which has made this country. Yet German propaganda has hypnotised millions of well-meaning citizens into honestly swallowing the stupid legend of the exorbitant profits of railway shareholders.

"I am sorry to say my constant efforts to get this problem considered on these lines seem so far totally to have failed. This great matter of transport has been regarded as merely a subject for word-spinning and arguments about details and dull memoranda.

"When certain far-reaching schemes of the greatest importance to every man, woman, and child in this country were put forward by representatives of the railways, they were received with a complete lack of imagination and sidetracked in the dossiers of technical departments."

He congratulated the railway engineers on the relative efficiency maintained despite incredible difficulties. The people, he said, should be told the facts and called into consultation at the same time as the railway directors from England who had been waiting for many months for the opportunity of a fair hearing and an opportunity to raise the transport question on a higher statesmanlike plane.

DJIBOUTI TO ADDIS ABABA RAILWAY.—An agreement between the French and Abyssinian Governments recently signed in Addis Ababa restores full control of the Djibouti to Addis Ababa Railway to the French company concerned.

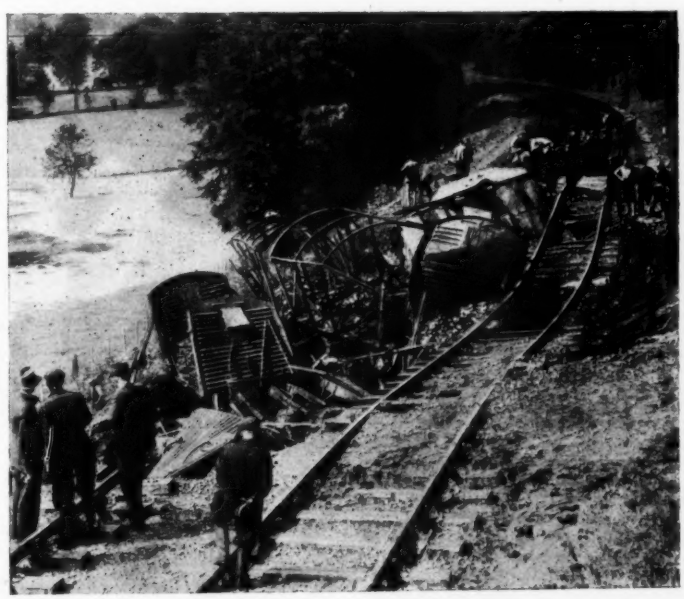
DIESEL PROGRAMME FOR BRITISH-ARGENTINE RAILWAYS.—It is reported from Buenos Aires that a programme has been prepared for the use of diesel traction on a wide scale on British-Argentine railways. The report adds that Major R. K. Hubbard, Co-ordinator for Post-War Planning of British-Argentine Railways, is expected to arrive in England at the end of this month to discuss the question with the companies' boards.

Excitation Circuits for Regeneration in D.C. Locomotives—(*concluded from page* 268).

double exciter, one for each motor group. In addition a large iron-cored choke was used to slow down current rushes caused by sudden variations in system voltage, Fig. 3 showing the diagram for the series grouping. Fig. 4 shows a portion of some results obtained in a multiple-unit regeneration test on two similar locomotives, as far as mechanical construction and rating were concerned, but with the one unit, referred to as "A," having a stabilising resistor excitation circuit and the other, referred to as "B," had the double exciter with a differentially-wound field. The weight of each unit was 67 (long) tons and the trailing load 1,380 (short) tons on 88 axles. The saturation of the main traction motors differed somewhat, which accounted for the different field currents required to give load-sharing. The first part of the test was carried out in the series grouping of all four motors of each unit while the second part applies to the parallel grouping with two motors per group, the regenerated current shown being that of one group.

The series test was commenced with a cold stabilising resistor; the effect of the temperature of this resistor was reflected in the field current curve of "A." Similarly the parallel test following some time later (½ hour) was commenced with a stabilising resistor which had been able to cool down. The resistances being lower at these points, the field currents—and consequently the corresponding armature currents—are higher than for the "B" system. The curves show the general behaviour of the two systems to be the same, making allowance for possible errors of observation, although the readings of precision instruments were taken simultaneously on buzzer signals.

G.W.R. Accident near Llangollen



Wreckage of the 3.35 a.m. Chester to Barmouth mail and newspaper train in chasm caused by wash-out of embankment by water escaping through a canal, on Sept. 7

German Austerity Goods Locomotive

In our issues of December 4, 1942, and June 4, 1943, the German war locomotive (*Kriegslokomotive*) "Series 52" was described and illustrated. A diagrammatic drawing has now been received, and a comparison between the "Series 50" (standard 2-10-0 goods locomotive) and the "Series 52" is given in the accompanying table, with particulars of the British 2-10-0 type of goods engine which was described and illustrated in our issue of December 15, 1944.

Comparing the design of the "Series 52" with that of the "Series 50," the former was designed on simple lines to facilitate rapid production with a minimum of man-hours. Approximately 1,000 components from the usual 6,000 were eliminated: the feed-water heater and other fittings not vitally important were omitted. It is claimed that a saving of 50 per cent. in production time, and 26 metric tons (25½ tons) of material, primarily steel and non-ferrous metals, were saved through the introduction of new methods of manufacture and the reduction in the number of unessential fittings.

The wheelbase of the coupled wheels is 21 ft. 8 in.; probably this has been reduced to 10 ft. 10 in. by the introduction of some form of sideplay in the leading and trailing axles, such as the Krauz-Helenholtz or Schwarzkopff-Echardt bissel arrangement.

	"Series 50" 2-10-0	"Series 52" 2-10-0	British austerity 2-10-0
Cylinders, dia., in.	23⅝	23⅝	19
,, stroke, in.	26	26	28
Coupled wheels, dia.	4 ft. 7⅛ in.	4 ft. 5⅛ in.	4 ft. 8½ in.
Coupled wheelbase	21 ft. 8 in.	21 ft. 8 in.	21 ft. 0 in.
Engine wheelbase	30 ft. 2 in.	30 ft. 2 in.	29 ft. 8 in.
Heating surface, tubes	1,910 sq. ft.	1,912 sq. ft.	1,951 sq. ft.
,, superheater	686 sq. ft.	686 sq. ft.	423 sq. ft.
,, total	2,596 sq. ft.	2,598 sq. ft.	2,374 sq. ft.
Grate area	42 sq. ft.	42 sq. ft.	40 sq. ft.
Boiler pressure, lb. per sq. in.	227	235	225
Tractive effort at 85 per cent. boiler pressure	50,740 lb.	54,575 lb.	34,215 lb.
Weight in working order (engine)	85 tons	84½ tons	78½ tons
Adhesive weight	73½ tons	75½ tons	67½ tons
Maximum axle load, coupled wheels	15 tons	15 tons	13 tons 9 cwt.
Minimum curve	—	7 ch.	—
Tender, water capacity	5,720 gal.	7,040 gal.	5,000 gal.
,, coal capacity	7½ tons	9½ tons	9 tons
Weight of tender light	23½ tons	17½ tons	—
,, tender in working order	59 tons	59½ tons	55½ tons
,, engine and tender in working order	144 tons	143¾ tons	134 tons

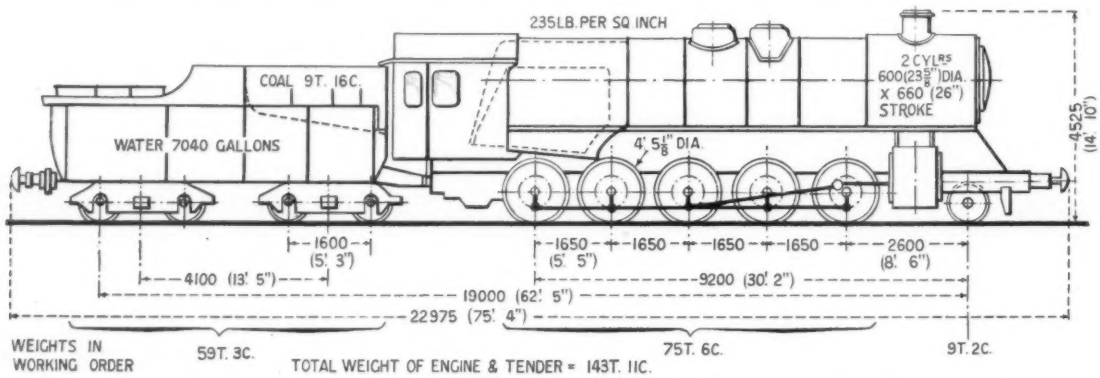


Diagram showing principal dimensions and weights of the German austerity goods locomotive

ELECTRO-PLATED COATINGS OF NICKEL AND CHROMIUM ON STEEL AND BRASS.—The British Standards Institution has issued a new British Standard (No. 1224-1945) covering electro-plated coatings of nickel and chromium on steel and brass. This specification has been drawn up to provide the essential qualities of electro-plated coatings, but it is realised that it is impossible, in the present state of the art, to specify completely every factor affecting the performance in service of such coatings. In view of the fact that large numbers of electro-plated articles will be required in the immediate post-war period, the Institution was pressed to publish its present findings as it was felt that these would form a workable basis between manufacturer and purchaser. The Committee hopes to provide a more complete specification later. The specification classifies the requirements of the various coverings according to the types of weather conditions to which they are likely to be subjected, and an Appendix gives examples of the articles falling into the different classes. Each class is designated by a code number and letter. Tests are given for thickness of coating and adhesion and, for the class subject to the most severe outdoor conditions, a porosity test. Copies of the specication (price 2s. post free) may be obtained from the Publications Department of the British Standards Institution, 28, Victoria Street, London, S.W.1.

Inspection of Southern Railway Police

Col. Eric Gore Browne, D.S.O. (Chairman S.R.) inspecting S.R. Police at Waterloo. Behind (left) Sir Eustace Missenden (General Manager) and (right) Lt.-Col. H. C. Prescott (Chief of Police, S.R.)

Railway and Road Transport Labour

It will not be overstressing the case to state that the most acute problem which the present Government has to solve is the speedy provision of adequate manpower for the re-establishment and satisfactory maintenance of the future economic life of the community. Contrary to expectations, since the termination of the war the pressure on the commercial and industrial organisations due to lack of manpower has become greater than during the war itself. The fundamental cause of the present situation is not wholly due to the upheaval caused by the war, for as a community we are still suffering from the loss of a whole generation of young manhood from the war of 1914-18, the incidence of which will make itself apparent for some years yet. From a national standpoint the present situation is governed by the repeatedly-declared adherence of the Government to the Bevin scheme of demobilisation, releases under which scheme are governed by age and service and not in order of priority of national importance of the demobilised men.

As announced by the Minister of Labour & National Service in the House of Commons on August 23, it is expected that about 1,150,000 men and women will be released from munitions work in the next two months; in addition, by the end of the year, approximately 900,000 men and over 100,000 women will have been released from the Services under classes A and B. At first sight these figures suggest that a total labour force of well over 2,000,000 men and women will be available for re-establishing civilian industries in the near future, but it must be remembered that many of the released workers will, and have exercised their right to, withdraw from employment and return to their domestic sphere, so that the number that will seek other industrial employment will be substantially less than the number released from munitions work. It must also be borne in mind that normal wastage from industry by old-age, infirmity, sickness, marriage, and death will affect adversely the estimated labour available.

In a recent notice issued to the Press by the Ministry of Labour & National Service it is stated that rail and road transport services have vacancies immediately for some 30,000 men and women, represented by a proportion of approximately two to one as between the two sections. Many more workers will be needed, however, during the next few months if services are to be maintained at the necessary levels.

Heavy demands still continue for military purposes, so that passenger services cannot be fully restored until the necessary labour is available and until the considerable arrears in the repair and replacement of locomotives and rolling stock can be overtaken. On the roads, also, passenger services are still far short of public requirements and there is an urgent need for their improvement in all areas.

Some idea of the extent of the problem may be found from the fact that, during the war, road and rail services (excluding railway locomotive, carriage and wagon workshops, and ancillary businesses) released for the Services and war factories some 220,000 men, out of a pre-war total of roughly a million. They have been able to carry on only by the adaptability of British women, of whom 150,000 joined the industry during the war. Although it is hoped that most of the women will remain during the present labour stringency, some at least may be obliged to leave due to domestic responsibilities. Many other transport workers who have been kept on long after the normal retiring age will also be leaving to enjoy a well-earned rest.

On the railways there are many vacancies offering a wide variety of interesting work. Workers are wanted in the first instance as goods and parcel porters, engine and carriage cleaners, engine shed workers, and labourers for the permanent way and other sections. In the operating and permanent way grades there are vacancies for about 11,400 men and 1,650 women. At least 1,000 additional clerical workers are wanted, mainly for booking and goods offices. Openings exist for both adults and juveniles. In railway workshops the total immediate vacancies are about 4,000.

In the road passenger transport industry there is an urgent need for suitable men to be trained as drivers of public vehicles and motor mechanics: there are also many vacancies for men and women as conductors, the total vacancies being for about 12,000 workers. In the road haulage section, motor drivers are also urgently needed, particularly for heavy vehicles and at present there are some hundreds of priority vacancies waiting to be filled.

United Railways of the Havana & Regla Warehouses Limited

Particulars of the promised scheme for the reorganisation of the capital of the United Railways of the Havana & Regla Warehouses Limited are now available. The plan is restricted to the loan capital and no change is to be made in the issued share capital of £10,668,225. The present outstanding loan capital is £12,498,720, made up of six classes of securities at varying rates of interest and with varying rights. It is proposed in order to secure the credit or position of the debenture holders, to maintain the capital value but to reduce the securities to two classes only, namely, £3,643,449 first cumulative 5 per cent. income debenture stock and £8,855,271 second non-cumulative 4 per cent. income debenture stock which is to become cumulative after the first stock has been wholly redeemed. Under the scheme holders will receive for each £100 of their existing holdings the following allotments:

	New first 5 per cent. stock	New second 4 per cent stock
	£	£
5 per cent. Debenture stock (1906)	30	70
4 per cent. Debentures and debenture stock	15	85
4½ per cent (United) redeemable debentures (approximately)	5	95
4½ per cent. Cuban Central debentures	100	—
5½ per cent. Cuban Central debenture stock	20	80
4½ per cent. Western debenture stock	45	55

The object of making the new stocks "income" stocks is to permit of the distribution by way of interest and/or contributions to the sinking funds of a moderate profit (insufficient to meet charges under existing terms of the debentures on which the interest alone amounts to £608,555 per annum) and this will be facilitated by the fact that the new senior security amounts to less than one-third of the total loan capital.

If the scheme is adopted the moratorium which was approved in 1930 and has been periodically extended until June 30, 1946, will end. The profits for the year ended June 30, 1944, would permit of the payment of interest at 5 per cent. on the new first stock in respect of that year though not admitting of any appropriation to the sinking fund for that stock.

The meetings to consider the scheme are to be held at Winchester House, E.C.2, on September 26 and if then approved the Court will be petitioned to sanction it. In the notice convening a meeting of the shareholders for a later hour on the same day it is proposed to shorten the name of the company to "United Railways of Havana Limited" and to alter the articles of association.

French Railway Control

The U.S.A. War Department announced on August 25 that an agreement had been signed by the British and American military authorities and the French National Railways Company setting up in France an Inter-Allied Railway Commission of six, to replace military control. French Government food trains for French civilians now have priority over all military traffic. Railway operation and control is now in the hands of the French Government.

Passenger traffic between France and Belgium is now back to normal, and from August 29 travellers do not require exit permits or visas.

The French railways, completely incapacitated by Allied pre-invasion bombing, are gradually recuperating. Damaged goods wagons are being returned to service at the rate of 100 a week and locomotives are being repaired at the rate of 70 a month. At the end of July the French National Railways Company had 206,368 serviceable goods wagons and 8,162 locomotives, against 163,707 and 7,717 respectively on May 1. The military railway service of the United States Transportation Corps has 2,008 locomotives and 44,147 American freight cars on the Continent, and many of the 104,576 goods wagons captured from the Germans are available for the movement of supplies in France. All French railway equipment recovered by the United States Army in Central Europe is being returned to France as soon as possible.

FRENCH RAILWAY TRAFFIC WITH BELGIUM.—The progress of the restoration of the railway traffic between France and Belgium may be gauged by the fact that services have been resumed on nearly all lines connecting the railway systems of the two countries in respect of both passenger and goods traffic. The following frontier stations are now handling all their attributions in respect of passenger and goods traffic.

French frontier stations	Belgian frontier stations
Houplines*	Le Touquet
Tourcoing	Mouscron
Baisieux	Blandain
Vireux (Molhain)	Treignes
Givet	Heer-Agimont
Ecouviez	Lamorteau
Mont-St. Martin	Athus

* On the reconstituted Armentières-Houplines line (dismantled before the war and replaced by a road motor service), extending northward via Le Touquet to Comines and Courtrai.

Notes and News

Summer Time.—Summer time will end early on the morning of Sunday, October 7, when clocks should be put back one hour.

Lubrication Sales Engineer Required.—International oil company requires a young trained railway engineer (mechanical) for post as lubrication sales engineer. See our Official Notices on page 279.

Egyptian State Railways Equipment.—The Financial Commission of the Egyptian Chamber of Deputies has advised the Egyptian State Railways to invite manufacturers of all nations to make tenders for the supply of £4,000,000 worth of railway equipment.

North British 2-10-0 Locomotives.—The North British Locomotive Co. Ltd. recently has completed the last of 150 of the 2-10-0 locomotives which it has built for the Ministry of Supply. Amongst those who witnessed the initial tests of the last of this type was Mr. R. A. Riddles, Deputy Director-General, Royal Engineering Equipment, Ministry of Supply, from 1941 to 1943. The locomotive bears the name *North British* and the shield of the 21st Army Group is emblazoned on the locomotive cab and the tender. The greater part of this type of locomotive is operating on the continent.

Railway Electrification in Sweden.—Electrification of Swedish privately-owned railways has not progressed as fast as on the State Railway system. Heavy cost, the probability of nationalisation, and the light traffic on a number of routes would not have justified the conversion for lines not forming links such as those of the State Railways' electrified system. At present, only about 15⅛ per cent. of the total length of the privately-owned railways is electrified, or 515 route miles out of 3,365 route miles. Nationalisation, the prospects of which may have acted adversely on private electrification plans, has made rapid progress in Sweden in recent years. Since 1939, private lines totalling not fewer than 1,994 route miles have been taken over. In recent months, two of the four remaining important private systems have been incorporated in the State Railways. After these two acquisitions, there remain only two large systems, totalling 994 route miles, and about 36 small concerns, aggregating some 2,360 route miles, in private hands.

Argentine State Railway Expenditure.—The Argentine Government has authorised the State Railways to spend up to 22,400,000 pesos (£1,317,000), of which 5,900,000 pesos will be spent this year to purchase motors and equipment for the construction of diesel coaches with a capacity of 80 passengers.

Track Material for South Africa.—More than 30,000 steel sleepers for the South African Railways were delivered to a Union port from Great Britain in July. During the war years, steel deliveries from Great Britain dwindled to a small trickle, but there is now a fairly steady flow. It is expected that the bulk of 800,000 steel sleepers ordered by the South African Railways from Great Britain will be delivered by the end of 1945. Urgently needed steel rails are being despatched in regular consignments.

Derailment near Llangollen, G.W.R.—On September 7 the G.W.R. issued the following statement: "At 4.35 a.m. the 3.35 a.m. Chester to Barmouth mail and newspaper train became derailed at Sun Bank Halt, near Llangollen, due to a section of the permanent way and embankment having been washed away by water escaping from a breach in the canal bank situated adjacent to the railway line. The train fell into the subsidence, and the up and down lines are blocked. The driver and fireman sustained severe injuries, but the guard escaped with shock and minor injuries. The train was not conveying passengers." It was reported later that the driver had died.

Spanish Frontier Station to Re-open.—According to reports from Spain, Canfranc frontier station on the Zaragoza-Pau main line, which has been closed to international traffic for a considerable time, is to reopen shortly for Spanish-French traffic. The intention is to free the station from Swiss wagons, and consignments of goods intended for Switzerland, which have been accumulating. It is believed that shortly after this clearance the station will be closed again to international traffic.

Glenfield & Kennedy Limited.—Provisional agreements for a fusion of the interests of Glenfield & Kennedy Limited with J. Blakeborough & Sons Ltd., and Alley & MacLellan Limited of Glasgow, have been announced in a circular to shareholders. In each case an offer will be made to the ordinary shareholders of the other companies to acquire their shares

Euston Staff Horticultural "Victory" Show

Mr. R. Bagwell (London District Passenger Manager, L.M.S.R.) congratulating Euston Police Officer Albert Papworth on gaining three special prizes with 12 firsts, 5 seconds, 2 thirds and 2 fourths

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices Sept 11, 1945	Prices Rise/Fall
G.W.R.				
Cons. Ord.	62⅜	55	52	—
5% Con. Pref. ...	122½	114¾	110	– 1
5% Red. Pref. (1950)	110½	104	103	—
5% Rt. Charge ...	135½	128	123	—
5% Cons. Guar. ...	134⅜	125	120½	—
4% Deb.	118⅜	112¾	108	—
4½% Deb.	118½	114	109½	—
4½% Deb.	124¼	119½	113	—
5% Deb.	137	129½	126	—
2½% Deb.	77	73⅛	76½	—
L.M.S.R.				
Ord.	34⅜	27⅞	25¾	+ ¼
4% Pref. (1923) ...	64½	55	53¾	– 1¼
4% Pref.	81	72½	70½	– ¼
5% Red. Pref. (1955)	105⅞	102	101½	—
4% Guar.	107½	99½	99½	—
4% Deb.	111½	104	104½	– 1¼
5% Red. Deb. (1952)	111	108	107½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7 7/16	6½	—
Def. Ord.	5 3/16	3⅜	3½	—
4% First Pref. ...	68⅜	55½	52½	– ½
4% Second Pref. ...	35⅜	28½	27	+ ½
5% Red. Pref. (1955)	101	97½	98	—
4% First Guar. ...	101½	96⅜	96½	– ½
4% Second Guar. ...	95½	88½	91	—
3% Deb.	88½	80⅜	83½	—
4% Deb.	110½	103½	104	—
5% Red. Deb. (1947)	105⅜	101½	101½	—
4½% Sinking Fund Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	67	– ½
Def. Ord.	26⅜	23	22½	+ ¼
5% Pref.	122	113½	108	– 1½
5% Red. Pref. (1964)	117½	112½	112	—
5% Guar. Pref. ...	134	125½	120	—
5% Red. Guar. Pref. (1957)	115⅜	112½	110	—
4% Deb.	118	110	107	—
5% Deb.	135½	127	126	—
4% Red. Deb. (1962-67)	111½	107½	108½	—
4% Red. Deb. (1970-80)	112	108⅜	108½	—
FORTH BRIDGE				
4% Deb.	107	103	104	—
4% Guar.	106½	102	103	—
L.P.T.B.				
4½ "A"	125	119	119½	—
5% "A"	133½	128	128½	—
3% Guar. (1967-72)	99½	98	99	—
5% "B"	124½	118 3/16	118	—
"C"	72⅜	64½	62½	—
MERSEY				
Ord.	35⅜	33	33	—
3% Perp. Pref. ...	72	66	69	—
4% Perp. Deb. ...	105	103	104	—
3% Perp. Deb. ...	85½	79½	80	—
IRELAND*				
BELFAST & C.D. Ord.	9	6	6½	—
G. NORTHERN				
Ord.	33⅜	19	29½	+ ⅜
Pref.	49	37	47½	—
Guar.	70	57 3/16	74	—
Deb.	90½	81½	90	—
IRISH TRANSPORT				
Common	—	—	79⅜	+ 2⅜
3% Deb.	—	—	100	—

* Latest available quotation

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50 inclusive unless he is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

A JUNIOR SALES ENGINEER required by large firm in North of England. Applicant should have good education followed by apprenticeship in Railway Engineering. Knowledge of Motor Trade an asset. Age should not exceed 30. Permanent position with good prospects. Write giving full details of experience and salary required.—Box 308, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1

ASSISTANT STOREKEEPER required by British-owned Railway in South America. Knowledge of Spanish an advantage.—Address by letter, "P. L.," c/o J. W. Vickers & Co., Ltd., 7-8, Gt. Winchester Street, E.C.2.

INTERNATIONAL OIL COMPANY requires young trained Railway Engineer (Mechanical) for post as Lubrication Sales Engineer in Great Britain.—Apply, with full details, to Box No. 149, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

YOUNG ASSISTANT MECHANICAL ENGINEER required by British-owned Railway in South America. Knowledge of Spanish an advantage.—Address by letter, "H. M.," c/o J. W. Vickers & Co., Ltd., 7-8, Gt. Winchester Street, E.C.2.

DIESEL TRACTION EXECUTIVES having Mechanical, Electrical or Engine design experience, required by Locomotive Engineers. Salary commensurate with qualifications and experience. Applications in confidence to Box No. 79, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

THE Proprietors of Letters Patent No. 546525, relating to "Cushioning Mechanism Employing Rubber or Similar Resilient Material," desire to grant Licences under the patent to interested parties on reasonable terms for the purpose of exploiting the same and ensuring its full commercial development and practical working in this country.

Enquiries to be addressed to Cruikshank & Fairweather, 29, Southampton Buildings, Chancery Lane, London, W.C.2.

THE Proprietors of British Patent No. 414951 are prepared to sell the patent or to license British manufacturers to work thereunder. It relates to "Improved Convertible Equipment for Compartments of Sleeping Cars and Similar Applications."—Address, Boult, Wade & Tennant, 112, Hatton Garden, London, E.C.1.

in exchange for fully-paid ordinary units in Glenfield & Kennedy Limited. All three companies will continue to trade in their own names under present managements.

Assistant Storekeeper Required.—Assistant storekeeper required by a British-owned railway in South America. See Official Notices above.

Assistant Mechanical Engineer Required.—A young assistant mechanical engineer is required by a British-owned railway in South America. See Official Notices above.

New Offices for L.N.E.R.—The L.N.E.R. has purchased for £500,000, the Hotel Great Central, adjoining Marylebone Station, London, which is at present requisitioned. We understand it is intended to use the building as offices, but there will be public restaurants and assembly rooms on the ground floor.

The L.N.E.R. Wants To Know.—A survey of public opinion on travel comfort, believed to be the first of its kind in this country, was initiated this week by the L.N.E.R. A booklet in which travellers are invited to answer twelve important questions affecting future passenger coach design and train catering services is being distributed on the principal day and night trains. Considerable importance is attached to the design of seats, and travellers are asked for their views on four aspects—slope of seat, slope of back, height from floor and springing. During the next few years the L.N.E.R. is planning to build 4,600 new carriages and orders for a large number are soon to be placed.

L.N.E.R. Train Service Alterations.—Important additions have been made recently to the L.N.E.R. main line services. An express train, mainly for newspapers and parcels, but conveying passengers also, leaves Marylebone at 1.45 a.m., calling at Rugby and Leicester, and reaching Nottingham Arkwright Street at 4.39 a.m. and Victoria at 4.54 a.m. The 7.30 p.m. from Liverpool Street now runs to Ipswich only, and a new express at 8 p.m., calling at Chelmsford and Colchester, takes up the through working of the former to Lowestoft and Yarmouth, reached at 12.3 and 12.5 a.m. For the first time since 1939, through coaches are restored between London and Fort William, leaving Kings Cross on Fridays at 7 p.m. (Fort William 10.48 a.m. on Saturdays), and returning from Fort William at 2.56 p.m. on Mondays.

L.N.E.R. Broad Street Suburban Trains.—The resumption of through running between L.N.E.R. London suburban stations and Broad Street, L.M.S.R., has resulted in the first regular working on record of L.N.E.R. locomotives and coaching stock into and out of this London terminus. The engines are the standard L.N.E.R. 0-6-2 tanks, with the usual suburban eight-coach articulated trains. Until the war, L.M.S.R. stock and 0-6-0 or 2-6-2 tanks were used, and before that, of course, 4-4-0 tanks and stock of the late North London Railway, with which the service originated. The only stop made by the present trains between Finsbury Park and Broad Street is at Dalston Junction.

The Institute of Transport.—The president (Mr. Robert Kelso) and members of the Council of the Institute of Transport entertained, at the Connaught Rooms, London, on Tuesday the editors of the trade and technical Press associated with the various branches of the transport industry. Mr. Kelso was in the Chair and among those present were Sir Frederick Handley Page (president elect), Mr. C. J. Selway (hon. treasurer); Sir William Wood (past president); Mr. J. S. Nicholl (past president); Mr. T. W. Royle (vice president); Mr. L. W. Gupwell (vice president); Mr. R. H. Jones (vice president); Mr. F. W. Crews (secretary); Mr. J. A. Kay (*Railway Gazette*); Mr. D. R. Lamb (*Modern Transport*); Mr. J. Finlay (*The Transport World*); Mr. C. F. Haywood (*Motor Transport*).

Mr. Kelso, in the course of an informal speech, emphasised the importance of the various sections of the great transport industry and said it was their endeavour not only to keep up to date but to be abreast of the times. Moreover, they had every intention of moving at the right speed.

Sir Frederick Handley Page observed that much was heard of education and higher education but expressed his admiration of those who had learnt in the great University of Life, the hardest of all schools. Members of such an institute as theirs, he said, could study the vital problems of transportation and he urged the importance of cultivating the art of entertainment by laughter and humour. Once they had reached that stage they could, like he was about to do, appeal for donations and soon the Institute would be seeking money to have a home of its own. New building was out of the question but there were available existing premises which could be converted to their requirements.

Mr. D. R. Lamb in replying to the main toast emphasised the value of the Institute to the various branches of the transport industry.

Contracts and Tenders

The Crown Agents for the Colonies hrve placed an order with the North British Locomotive Co. Ltd. for forty 4-6-0 tender locomotives for the Federated Malay States Railways. The locomotives are similar to the "01" class previously supplied by the same company.

Mobile Exhibition of Penicillin in G.W.R. Vans

Left to right: Sister Hodges, the Hon. Edward C. G. Cadogan (Deputy Chairman), Sir James Milne (General Manager), and Lord Portal (Chairman, G.W.R.)

Interior of one of the vans containing St. Mary's Hospital Penicillin Exhibition which is touring the G.W.R. system (see paragraph in last week's issue)

Railway Stock Market

Business in stock markets has been further restricted by a waiting attitude pending the outcome of the important Anglo-American talks, and there were small indefinite price movements in most sections. British Funds receded under the lead of 2½ per cent. Consols, investment attention being directed to the impending savings weeks drive. Following their recent strong advance, in which European Loans, particularly Greek stocks, participated, foreign bonds reflected profit-taking. In particular, Japanese bonds declined sharply and, elsewhere, South Manchurian Railway 5 per cents have reacted to 58, compared with 64 a week ago.

After remaining under the influence of the T.U.C. discussions on the future of transport and moving lower, home rails attracted moderate buying and junior stocks rallied slightly, but were mostly lower on balance for the week. There has been no pronounced selling but, reflecting inactive markets, buying has been on a very moderate scale. Nevertheless, the view persists in many quarters that prices are at unduly low levels, and more than discount the prospect of nationalisation developments, which it continues to be assumed, cannot be brought forward for some time to come. Dividends at around current levels can be expected so long as the fixed rental remains in force, and according to some views, there may be possibilities of small fractional increases in the case of L.M.S.R. ordinary and L.N.E.R. second preference. The assumption is that now the war is over the allocations to contingency reserves, which have been a feature of the results of these two companies, may perhaps be discontinued. It should be mentioned that these hopes have been resurrected from time to time and have been disappointed. In any case, yields on the basis of current dividends are substantial and the main factors influencing home rails will doubtless continue to be developments in connection with the future of transport. Until the Government has made a decision and its plans can be effected, however, it is expected the fixed rental agreement will remain in force.

Argentine rails became reactionary following their recent rally, sentiment coming under the influence of the outspoken comments of the British Ambassador on the treatment received by the British owned railways. In particular, his statement that repeated efforts to get the Argentine authorities to reconsider the matter have failed, had a depressing effect. United of Havana debenture stocks, after an adjustment to accord with the terms of the reconstruction scheme, became easier, and the 1906 debentures reacted sharply.

Among home rails, Great Western, after declining to 51¾, rallied to 52¼, which compares with 52½ a week ago. The 5 per cent. preference at 110 was 1½ down on balance, and the guaranteed stock at 119½ lost a point, as did the 4 per cent. debentures at 107. Similar declines ruled among prior charge stocks of the other main-line railways, L.M.S.R. ordinary regained an earlier fall, and at 25⅜ was the same as a week ago, but the 1923 preference went back from 54¾ to 53½ and the senior preference from 71¼ to 70¾. L.N.E.R. second preference received more attention, and following a further decline, rallied to 26⅞, a small rise over the 26⅝ ruling a week ago. L.N.E.R. first preference, however, went back from 54¼ to 52½. Southern deferred at 22¼ was well maintained on the week, but the preferred was a point lower at 67½, while the 5 per cent. preference fell from 110 to 108 and the 4 per cent. debentures were a point down at 106. On the other hand, London Transport "A" and "B" were in request and moved slightly higher, although the "C" stock eased to 63.

Among Argentine rails, Buenos Ayres Great Southern dropped a point to 11½; the 5 per cent. preference showed a similar decline to 26½, and the 4 per cent. debentures fell from 67 to 65. Buenos Ayres & Pacific consolidated debentures, however, were higher on balance at 64½ although best levels were not held. Central Argentine 5 per cent. debentures reacted from 68½ to 66, Buenos Ayres Western 4 per cent. debentures from 62 to 59, and Entre Rios 4 per cent. debentures lost a point at 64. Elsewhere, United of Havana 1906 debentures fell back to 19½. Canadian Pacifics reflected the rise in dollar stocks, but later eased to 20¾.

ENTRE RIOS RAILWAYS CO. LTD.—The directors of the Entre Rios Railways Co. Ltd. have decided to pay on October 1, 1945, the interest for the six months ended May 31, 1934, on the 5 per cent. debentures of the company together with the 5 per cent. per annum interest thereon, amounting in total to £3 18s. 4d. per £100 debenture, less income tax at 10s. in the £.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1943/4	No. of Week	Aggregate traffics to date: Totals 1944-5	Aggregate traffics to date: Totals 1943-4	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: Sept. 11 1945	Yield % (See Note)
				£	£		£	£	£					
South & Central	Antofagasta (Chili) & Bolivia	834	2.9.45	30,280	— 3,670	35	1,045,240	1,007,510	+ 37,730	Ord. Stk.	13¼	9½	10¼	Nil
	Argentine North Eastern ...	753	1.9.45	21,400	+ 4,294	9	173,787	155,606	+ 18,181	"	6¼	4½	8	Nil
	Bolivar	174	Aug., 1945	5,035	— 819	34	39,437	42,517	— 3,080	6 p.c. Deb.	18¾	7½	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19⅞	15	23	Nil
	Buenos Ayres & Pacific ...	2,771	1.9.45	122,750	+ 4,625	9	1,114,250	1,059,562	+ 54,688	Ord. Stk.	7⅛	3¾	5¾	Nil
	Buenos Ayres Great Southern	5,080	1.9.45	225,437	+ 56,500	9	1,754,562	1,551,625	+ 202,937	Ord. Stk.	14⅞	9¾	11½	Nil
	Buenos Ayres Western ...	1,924	1.9.45	63,750	+ 2,938	9	610,312	569,750	+ 40,562	"	13¾	9¼	11½	Nil
	Central Argentine	3,700	1.9.45	200,375	+ 21,469	9	1,706,765	1,597,275	+ 109,490	"	10¼	6⅞	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4¾	3	4	Nil
	Cent. Uruguay of M. Video	972	1.9.45	33,767	+ 5,829	9	309,551	285,437	+ 24,114	Ord. Stk.	5½	4	6	Nil
	Costa Rica	262	June, 1945	36,024	+ 12,773	42	295,175	274,930	+ 20,245	Stk.	17½	14¼	15	Nil
	Dorada	70	Aug., 1945	29,000	— 875	34	243,335	207,565	+ 35,770	1 Mt. Deb.	101	101	101¼	£5 18 3
	Entre Rios	808	1.9.45	26,056	+ 3,937	9	239,512	213,237	+ 26,275	Ord. Stk.	6½	4½	6½	Nil
	Great Western of Brazil ...	1,030	1.9.45	21,300	+ 1,800	35	853,500	749,600	+ 103,900	Ord. Sh.	38/-	23/3	25/-	Nil
	International of Cl. Amer. ...	794	July, 1945	$224,789	+ $78,819	30	$1,490,855	$1,354,082	+ $136,773	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	¼	1	Nil
	La Guaira & Caracas... ...	22¾	Au ., 1945	6,213	— 3,142	34	49,503	64,295	— 14,792	5 p.c. Deb.	88	79	76½	7 6 5d
	Leopoldina	1,918	1.9.45	57,431	— 8,791	35	1,764,059	1,589,961	+ 174,098	Ord. Stk.	5¾	4¼	4	Nil
	Mexican	483	7.9.45	ps 482,100	+ ps. 25,500	9	ps. 6,220,800	ps. 4,877,100	+ ps.1,343,700	Ord. Stk.	¾	⅛	1¾	Nil
	Midland Uruguay	319	June, 1945	21,830	— 6,402	52	217,882	203,238	+ 14,644	—	—	—	—	—
	Nitrate	382	31.8.45	10,527	+ 3,719	34	122,321	126,056	— 3,734	Ord. Sh.	75/10	65/10	70/-	£3 11 5
	North Western of Uruguay	113	June, 1945	4,575	— 2,189	52	66,965	91,572	— 24,607	—	—	—	—	—
	Paraguay Central†	274	31.8.45	£59,805	+ £2,687	9	£575,683	£510,162	+ £65,421	Pr. Li. Stk.	79½	68	77½	£7 14 10
	Peruvian Corporation ...	1,059	Aug., 1945	148,453	+ 21,368	8	283,203	245,725	+ 37,478	Pref.	9	10	9¼	Nil
	Salvador	100	June, 1945	c 91,000	+ c 11,000	52	c 1,511,000	c 1,484,000	+ c 27,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57¾	46	57½	£5 4 4
	Taltal	156	Aug., 1945	2,415	— 1,308	8	5,535	4,200	— 1,335	Ord. Sh.	21/3	13/9	13/9	Nil
	United of Havana	1,301	2.9.45	40,826	— 8,884	9	396,143	432,946	— 36,803	Ord. Stk.	4	2½	2	Nil
	Uruguay Northern	73	June, 1945	1,460	— 52	52	19,568	17,929	+ 1,639	—	—	—	—	—
Canada	Canadian National	23,569	J.ly, 1945	1,816,800	+ 68,400	30	9,696,400	8,196,600	— 248,600	—	—	—	—	—
	Canadian Pacific	17,028	7.9.45	1,155,800	— 98,000	35	46,318,200	43,255,600	— 62,600	Ord. Stk.	17¼	13½	20¼	—
Various	Barsi Light†	202	June, 1945	19,620	— 4,185	14	74,595	75,487	— 892	Ord. Stk.	129½	97½	129½	£3 9 6
	Beira	204	June, 1945	80,259	— 11,581	42	—	—	—	—	—	—	—	—
	Egyptian Delta	607	31.7.45	17,687	— 1,020	14	196,080	186,144	— 26,279	Prf. Sg.	7½	5¼	6½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	65	Nil
	Midland of W. Ausytralia ...	277	July, 1945	13,766	— 5,412	4	13,766	19,178	— 5,412	Inc. Deb.	101½	99⅛	95½	£4 3/-
	Nigeria	1,900	26.5.45	277,630	+ 23,531	8	1,823,785	1,739,068	+ 84,717	—	—	—	—	—
	Rhodesia	2,445	June, 1945	522,625	— 40,423	42	—	—	—	—	—	—	—	—
	South Africa	13,301	4.8.45	1,040,410	+ 94,769	18	17,800,262	15,503,620	+ 2,296,642	—	—	—	—	—
	Victoria	4,774	April, 1945	1,285,324	+ 96,325	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ¼. Argentine traffics are given in sterling calculated @ 16 pesos to the £.

† Receipts are calculated @ 1s. 6d. to the rupee.